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AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

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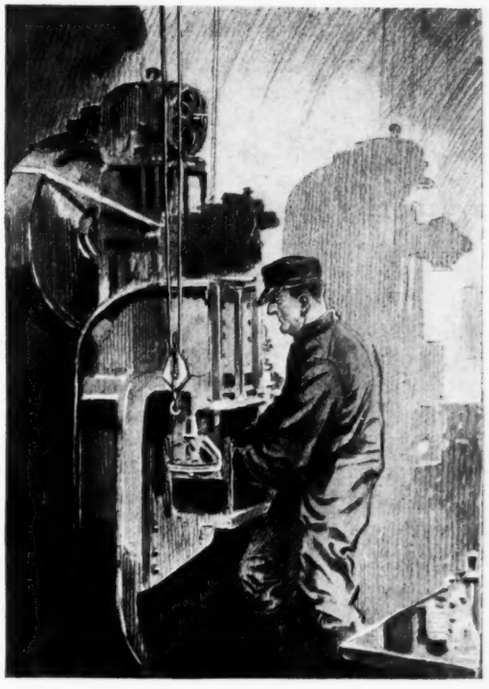
Cut Production Waste—

Modernize!

Profits of the future must come from better factory methods—not from "tacked-on" tariff

By W. L. Carver



"THOSE who survive in the industry will be those who build a good product, standardized from the point of production; who first eliminate all unnecessary overhead, concentrate on a single model, and place themselves in a position to finance the business from purchase of raw material to the last payment made by the customer." This, with a prediction of prosperity for the present year and of a contraction of the number of car producing companies, is the gist of a statement made recently by Edward S. Jordan.

Business men in all fields are in agreement as to the trend toward prosperity, although, for the reason that prosperity is based on economic rather than purely political actuation, opinion is gradually veering around to the idea that 1925 will be a year of healthful building and that the real fruits of prosperity will then develop later on—during 1926.

As to the tendency toward contraction, this influence has been overestimated in the past. It is only rarely that an actual physical manufacturing plant has died. Throughout the period of rapid expansion many small plants were the bearers of successively different names, and ultimately many of them became units of some of the larger companies.

Small investors rather than the industry were the real sufferers. Most of these were local business men engaged in other lines who were attracted by the tremendous fortunes associated with the growing industry. But in most cases the white elephant of national distribution or un-

"BOOM DAYS" in the automotive industry are past.

The situation has ironed itself out to a point where the manufacturer must begin to think of building his profits from what has heretofore been production waste.

That intangible thing called "overhead" must be conquered.

This article tells in clear, non-mincing terms how production practices are going to control the stop-watch in the next stage of the ever-present race for supremacy and survival!

sound design devoured the limited working capital and the plant passed on to new enthusiasts.

Now that the period of rapid expansion is past, there is bound to be some actual blood letting. As a whole the industry is overorganized and has production capacity beyond the most optimistic sales predictions. Many of the largest producers are waging war to the knife to maintain their places in the sun by developing a consistent income commensurate with the capital investment. At least one large producer already has turned to the manufacture of accessories and thereby is utilizing a portion of excess capacity.

Consequently the large producers will not continue to absorb the unsuccessful isolated plants. Furthermore, the automotive industry now occupies an established place in the business firmament. Bankers have developed an appreciation of its position and possibilities, a great share of them have carried its surplus funds, and in other times not a few of them have been "stuck" with some of its paper. Therefore the days of blind financing and rehabilitation of orphans may be said to be over.

Signs of Diversification

In the face of Mr. Jordan's prediction a pronounced tendency toward diversification exists already. One of the oldest and most soundly established producers now has a complete line embracing no less than ten different units in the car, truck and bus fields. Several companies, including his own, build sixes and eights, and one or two include a four with these two. Others have two lines of sixes and one company has three. Another builder has announced his definite intention of entering this group.

General Motors, which is tending constantly toward greater unification of operation, has no less than five lines of cars in seven different wheelbases.

Concentrated dealer interest and amplified dealer profit seem to be the underlying cause, and the battle for dealers is on. Everywhere in the most recent plans and schemes the question of sustained profits all along the line is paramount.

The propositions of complete financing and concentration on a single standardized model are attractive and possible, but considering that the industry, or at least certain units of the industry, have a quarter of a century of history back of them, the real possibilities are an open question. Projected to infinity, complete financing is the outstanding aspect of a vertical trust in which property investment and labor are the sole items of the manufacturing program. At present but one organization in the industry approaches this condition, and it has been more than twenty years in the building. Twenty years is a long time in this industry.

Assuming a hypothesis of a few centralized makers, each producing a standardized unit, the ultimate "quod erat demonstrandum" would be a sales procedure conforming to that of the well known Mr. Kresge. But human nature and the airy fluctuations of buyers' taste leave room for variations and for even the small producer who, in the vernacular, knows his stuff. The automobile will never be purchased entirely as a utility, as Colonel Ayers pointed out in his speech during the New York Show. Instead of being a purely economic necessity, the automobile has more of the aspects of a social necessity.

Sales Get the Spotlight

However opinions may diverge on many aspects, the need for elimination of all unnecessary overhead and the production of a good unit will get a unanimous vote. These points should not require outstanding emphasis except for the reason that sales and merchandising have crowded all of the other departments out of the spotlight temporarily. Much of the recent engineering development, if it may be called that, has been "talking point" engineering, a process of elaboration instead of fundamental engineering which usually results in simplification of both operation and detail.

In a few plants production as applied to methods and management is in proper perspective with the entire scheme, but in many instances this department and its best interests, which incorporate the best interests of the whole organization, are subordinated to the mad rush of selling.

Above all, the executive of final responsibility must appreciate the tie-up between the apparently minor problems of the production department and subsequent troubles in the sales and service departments. A machine of the wrong type or equipped with incorrect tooling may produce troubles in the field which will damn a year's output and set up a hazard in front of several more years. Also, a refined piece of design from the engineering department can be nullified by shop equipment which is an inadequate combination of accuracy and quantity.

While the term "overhead" as applied to non-productive labor is an exceedingly flexible one and capable of application in a multitude of ways, any one of the typical items in the previous paragraph, or dozens of others, introduce an intangible, immeasurable item of additional overhead expense.

These items are intangible and immeasurable for the reason that the corresponding expense items are not included in the budget based on the policies or plans for the year. Therefore, they might be called the overhead on defective policies or judgment. It is this type of overhead which creates orphans and more than often is responsible for the "hot-water" treatment taken by bigger outfits.

Overhead That Is Malevolent

Overhead, as understood ordinarily, has a sufficiently bad reputation, but the overhead on defective policies or judgment is downright malevolent and obliterating.

With the transition from the period of rapid expansion to a flattened curve of production many of the policies of the earlier period must be junked or the consequent overhead will ruin the business.

In the boom period profit could be added on ordinarily at the end of the manufacturer's program, but from now on it must be built into every phase of design, manufacture, production, sales and service.

In this connection some people in the industry have a misconception of the so-called saturation point. No such animal exists. However, a curve of reasonable saturation or demand is indicative of the aggregate possibilty. This curve can not descend for a number of years, or until the aviation industry and the science of air traffic is better established. Meanwhile the curve of saturation or demand should be studied as an acceleration curve in which the rate per second is decreasing slowly but constantly.

From the production angle several policies must be affected in order to reduce this form of overhead. In the first place there is the factor of closed body demand. The effects of this demand can be approached by a study of average wholesale values over the period of the last five years. These approximate values are shown in the following table:

1920	$1,000
1921	750
1922	675
1923	490
1924 (Preliminary)	625

In spite of the fact that the industry sold more car for the dollar than ever before, the average wholesale value per vehicle jumped about $135 per unit during the last year. An analysis of this increase points inevitably to the increasing percentage of closed car production.

Possibly, the average value will increase for another year, but it is almost safe to predict that it will decline. This decline, when it comes, will be based on improved body shop methods. The body shop went along as the stepchild of the industry for a long time but many manufacturers are studying methods in this department as never before. Machine shop methods have been improved constantly, but only recently have many of these methods been applied to the body shop.

Recently the Packard Motor Car Co. made a striking slash in closed body prices. They were followed by some other producers and a substantial portion of the industry sells coaches or broughams at open car prices. With Packard, this cut was preceded by a complete revamping of body shop equipment and methods. Metal jigs and fixtures, power-operated machines for detail operations and line production have supplanted the time-honored, wood-equipped body shop. Only by improvements of this nature can the cost of existing types of bodies be brought down to a competitive level.

The car or body manufacturer who continues to pull upstream by cutting prices with the hope of increased volume without making the reduction at the source is bound to tack on an inordinate item of intangible overhead and can look for rough times ahead.

YOU wouldn't build a new suit of clothes around an old set of buttons just to conserve the investment in buttons!

Yet, as Mr. Carver points out, that is the practice often followed by automotive manufacturers in regard to machine tools.

There is no appropriation for new machinery, they find, so new parts must be purchased for old, antiquated machines.

Nothing is added to production and the expense of the new part eats deeply into what logically ought to be profit.

False economy!

In connection with closed bodies, the Weymann type crops up continually, although no commercial body builder or car manufacturer has taken this design seriously. The Yellow Cab Manufacturing Co. of Chicago has built a number of taxicab bodies on the Weymann scheme and have found that they compared favorably with the conventional type in test. Although the fabric body as designed in this country has taken hold with several of the custom body builders, production shops have passed this type up with the Weymann design. Possibly this is another instance in which the ideas of the expansion period call for revision.

A big field for intangible overhead exists in the machine shop, particularly as related to equipment policies.

We have seen the swing from the specialized part machine to the specialized function machine which represents a more conservative, longer-lived investment. Following this, a new tendency is developing, which is based on the machine tool builders' appreciation of the fact that the period of rapid expansion in the automotive industry has passed. The purely replacement market is no longer attractive, as it has almost ceased to exist. Consequently, machine tool designers and builders have awakened to the necessity of producing machines which render broader and more economic service. Redesign to make detailed parts heavier no longer constitute development in the machine tool field and appeals only to the comparatively negligent replacement field.

Judging by the rate of development in the past few years, it is safe to assume that the modern automotive production shop of five years hence will bear but slight resemblance to the well-equipped shop of today. Along with the principles which resulted in the development of the various cyclic machines, such as the Mult-Au-Matic, Duo-Matic, Simplimatic and many others, has come an appreciation that where one gigantic source of orders exists, there are a hundred or even thousands of medium and small plants which can utilize the same principles in a different measure. Therefore machine tool builders are turning to the development of equipment which reduces the unit labor charge for small lots in the same measure as the more expensive machines lower this item in the big shops.

This trend in development will be applicable to the service parts production of even the largest builders and will be of utmost value to the small and medium-sized producer. As the finest cars are being manufactured in quantity today, the smaller producer of distinctive types is up against the proposition of producing these at a commensurate cost or his prices will offset the sales advantages.

In view of the pressure of development in the machine tool field, it would seem logical to absorb the investment in machine tools in the shortest possible period. This may be done by purchasing the flexible specialized-function machine and pushing it to capacity on the greatest number of parts in its useful life. Due to its flexibility, this capacity is not limited to any one part but may be distributed over the operations on a number of different parts.

Practically no progressive machine tool builder in the country is without plans for machines which will perform greater, more accurate service at a reduced labor charge. With this influence bearing on the manufacturing program, unique developments which will obsolete present methods are bound to follow.

Improvement in Grinders

In addition to this refinement in the machine tool field, centerless grinding, disk and ring grinding are advancing rapidly, while the conventional grinders of today are the subject of constant improvement. Coin press and swaging operations are reducing the labor charge on many different jobs and forging operations are being revamped to reduce the labor of finishing.

These are aspects of a highly competitive market where prime cost has much to do with the survival of the individual producer. In the period of expansion when profits could be tacked on, equipment was largely a matter of greater numbers of machines or greater investment. Now equipment policies are based on the proposition of the greatest return from the single unit of equipment and investment.

Recently a machine tool builder went to an automotive plant and begged the production executive not to spend $175 with him for a new spindle for a milling machine which he had in 1906. He pointed out that spindles of those days were cheap, being turned off of mill bar, but that the present spindle practice consists of turning and grinding an expensive alloy steel forging. On top of this, the freight and handling charges plus the labor of overhauling the machine and the usual overhead would easily run the total cost of this repair up to $350-$400, and the net result would be a rather indifferent milling machine with the production characteristics of its true day and age. The production executive agreed with him in every particular, but came around finally to the usual brick wall, "The big boss says no appropriations for new machinery."

What Is the Overhead?

That is a fine upstanding ukase which goes the rounds regularly, but what is the intangible overhead on building a new suit around a set of buttons in order to conserve the investment in buttons.

Overhead of this type is the real overhead of the industry. Most executives have rather definite ideas of the overhead on "opinion" engineering. And most executives have some ideas about the overhead on "wildcat" sales ideas. In fact, the chief job of the executive of final authority is the censoring and pruning of this type of overhead.

In the conventional sense, overhead means just about as much as the term "industry" or the "saturation point." A plant which spends too much money in productive labor can have a rather low overhead rate and still be wasting money like a drunken sailor. Another plant, well managed with the right amount of productive and non-productive labor, will show a higher rate of overhead and at the same time a greater return per dollar of capital investment. In some plants overhead includes engine testing. In others the labor of loading cars out is charged to the overhead account.

Like some of Rube Goldberg's engineering, overhead doesn't mean anything. In the end, profit or survival is a proposition of how much money remains after material and labor have been paid for and the product has been sold. One criterion of good management which is used in many plants is a daily ratio of the number of units produced per man or conversely.

In the automobile field in this country this figure varies all the way from 14 men per car per day to 600 men per car per day. Neither of these figures is probable for the producer in the medium field but a continuous study of this ratio along with the correctives which can be applied at the same time will result in better management than that based on comparison of overhead rates.

No Sweet Panacea Exists

There is no sweet panacea for the industry or its overhead. The industry is just an abstract generality which embraces any number of individual concerns engaged in lines of similar endeavor. Each of these individuals is trying to make a profit for the stockholders by running his business according to his own lights. Usually each of them thinks he has found a way to beat the game. Overhead is just one of the trick phrases of this process. In the end, the game now is a process of keeping abreast of the latest developments in every department, and building the profit into every phase of the individual concern's efforts.

The boom times of the expansion period have joined the landing of the Pilgrims and the Battle of Bull Run. The automotive manufacturer and distributor of today have got to face the problems of the cloak and suit maker and the furniture manufacturer.

ONE of the leading candle factories in the Netherlands is conducting exhaustive tests on the roads around Gouda with a new dust preventive preparation which was discovered by a Swedish bacteriologist, Dr. Erslev of the Jurgens Margarine Factories at Oss.

The mixture which is being used for this purpose consists of a coal tar preparation which is suspended in water to form a colloidal solution. This solution is then spread on the roads by means of an ordinary sprinkler wagon and the water soon dries, the residue conglutinating with and thus suppressing the road dust. It is said that repeated sprinklings tend to form a heterogeneous road covering somewhat similar to asphalt. The application of this mixture not only makes roads dustproof, but also protects the surface.

The cost of applying this preparation is reported very low and not much higher than ordinary water sprinkling, as the latter process must be repeated four or five times in order to be successful.

Franklin's Appearance Greatly Altered by New Body Design

Conventional hood adopted on recently announced model. Important chassis changes include copper cylinder fins, drop type sill frame, longer wheelbase, Brown-Lipe clutch.

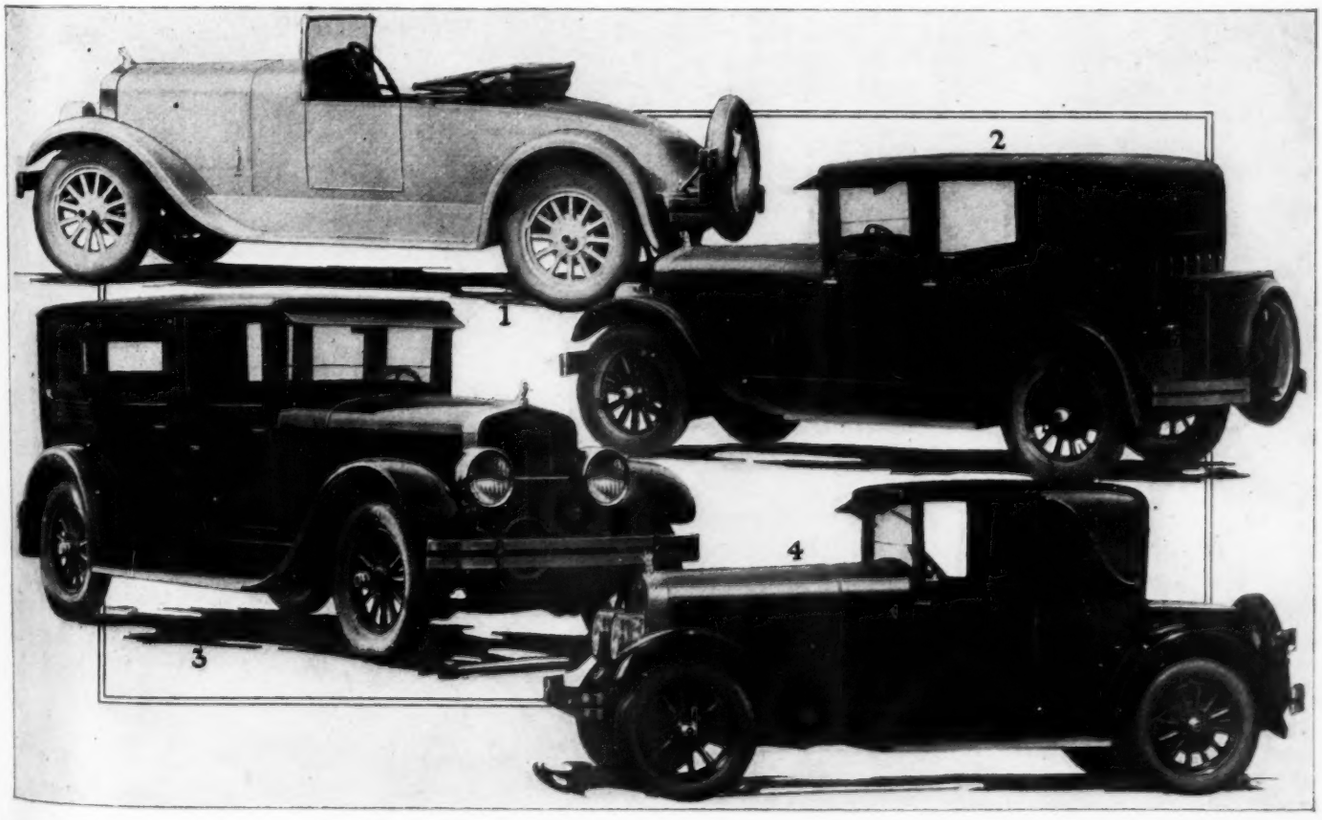
By P. M. Heldt

THE new Series 11 Franklin, brief announcement of which was made in our news columns last week, differs radically in appearance from previous models, due to a complete redesign of the hood to provide a more conventional effect. A number of changes have also been made in the chassis.

One of the most important chassis changes is the substitution of copper for steel fins on the cylinder. In order to take full advantage of the better heat conductivity of copper, the fins have been reduced to one-half their former thickness and the spacing has also been reduced so that twice as many fins are now used as formerly. The method of application remains the same, the fins being set into the mold before the metal is poured. A very good bond is obtained in this way, as indicated by sections of the casting through the fins. The total radiating area has been increased from 4500 to 7926 sq. in.

The thickness of the cylinder head has been increased by ⅜ in. in order to increase the capacity for heat flow to the cylinder wall, and the fins, of course, are carried up that much further. The increased facilities for disposing of heat absorbed by the combustion chamber walls thus provided have made it possible to increase the compression ratio to 4.44 to 1 (by having the piston come up 1/16 in. higher in the cylinder) and at the same time to reduce the maximum temperature of the wall. The maximum output of the engine is now 33 hp. at 2200 r.p.m.

A minor change has been made in the valve operating mechanism to reduce the operating stresses in it and make it more nearly silent. The tappet lever on top of the cylinder head has been redesigned with a generally deeper and narrower section, so as to give increased strength with less weight, and the adjusting screw has been moved from the valve end to the tappet end, where the inertia forces on it are smaller because this arm is shorter and its end therefore moves a shorter distance.



New Franklin body models (by de Causse): 1, roadster; 2, sport sedan; 3, enclosed drive limousine; 4, coupe

The crankcase has been considerably stiffened by strengthening the ribbing. The upper end of the duralumin connecting rod has been changed in that the clamping screw, which formerly was at right angles to the shank, is now placed at an angle outside the shank, passing through substantial lugs cast on the top end of the rod.

The capacity of the rear fuel tank has been increased from 13 to 15 gal. and a larger size of vacuum tank is also fitted, which obviates difficulty from insufficient fuel feed on long hills. The throttle motion is now limited, the idling position being fixed by a stop on the carbureter throttle lever. Formerly the throttle could be completely closed.

A change has been made in the electrical equipment, the Dyneto two-unit system being fitted on the new series. A feature of the Dyneto generator is a device known as a protectostat, which automatically opens the field circuit in case of a break in the main circuit—say, at the battery terminal or the ground. The generator being controlled by the third brush system, the voltage rises to a very high value if the main circuit is opened, and damage to the field coils, etc., is then prevented by this protectostat, which automatically opens the field circuit. The device is in the form of a capsule and the circuit can be closed again by reversing the position of this capsule.

Larger Battery Used

A larger battery is now fitted—a 19-plate Willard of 146 amp.-hr. capacity. This battery hangs in an open frame and is sealed on top by rubber strips, so that no dust or dirt from the road can get to it. There is a cover over the battery inside the front seat, the object of this cover being to prevent fumes from the battery rising through the seat and annoying the passengers in closed cars.

The starting button has been moved from the footboard to a position on the toeboard, where there is no possibility of stepping on it by accident. All exposed electrical connections under the hood are now protected by suitable insulators. This has been found to be desirable, because in fording streams water is likely to be drawn into the fan and is then discharged by it at the base of the cylinder cooling jackets and may get onto these connectors. The spark plugs are provided with skirts of thin bakelite, which are fastened under the terminals. A rubber boot covers the whole ignition unit comprising the interrupter-distributor and the coil, and there are also rubber boots on the connections to the starter.

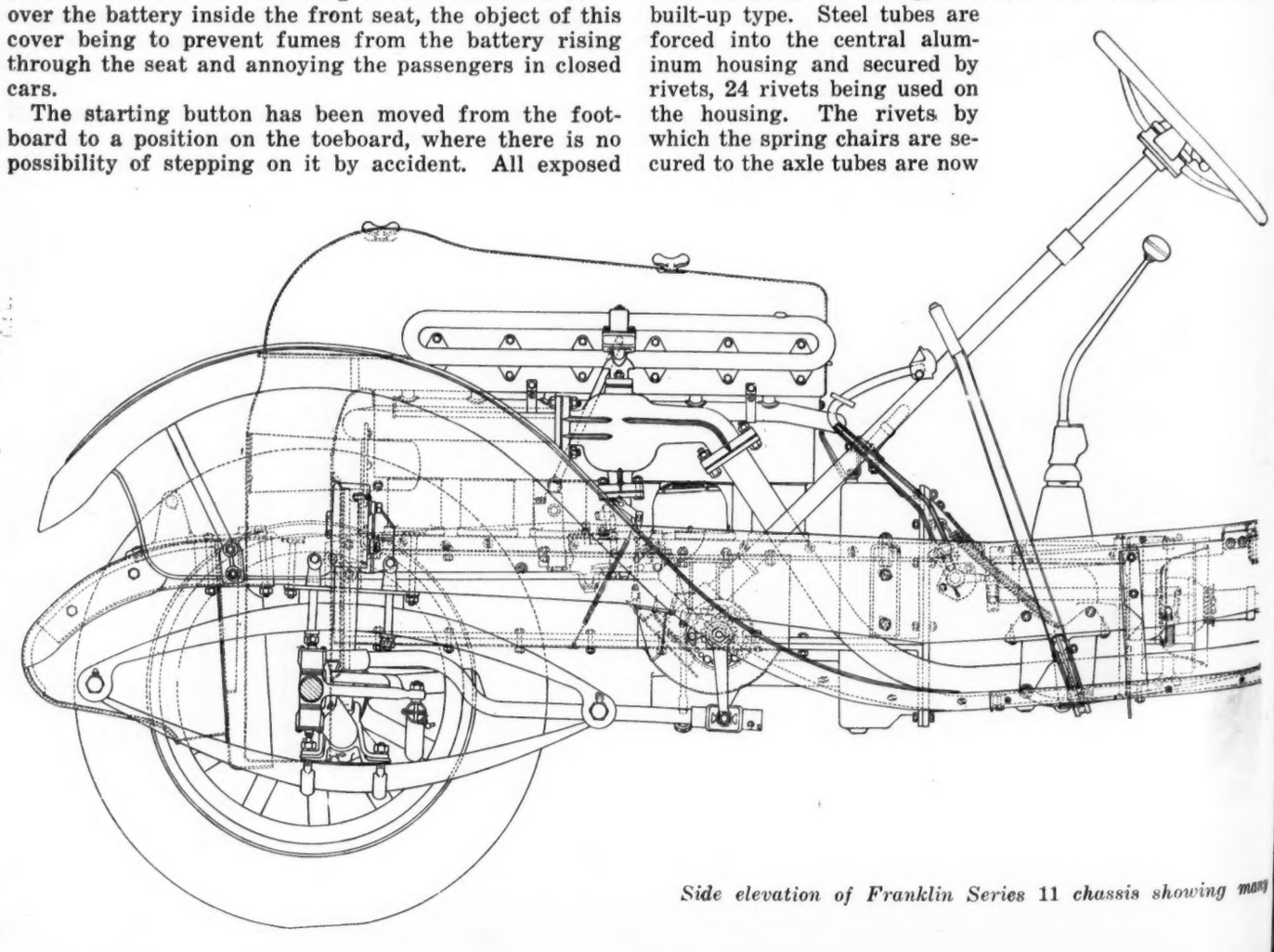
Crankcase Drain Cock Moved

The oil drain cock on the crankcase has been moved forward directly behind the oil pump, where it is better protected against injury by road obstructions.

Heretofore the Franklin company has been manufacturing its own clutch, but the new series carries the single plate Brown-Lipe clutch. The cover of the transmission has been redesigned, this having been made necessary by the dropping of the floorboards 3 in. A Johnson transmission lock has been substituted for the one formerly used.

The emergency brake on the transmission is continued, but its diameter has been increased from 9½ in. to 11 in. to make it more powerful, while its width has been slightly decreased.

The angle of spiral of the rear axle drive gears has been increased to render these gears more nearly quiet in action. Two annular ball bearings of the so-called 200 per cent thrust type are now used on the pinion shaft. Some changes have been made also in the construction of the rear axle housing, which, as formerly, is of the built-up type. Steel tubes are forced into the central aluminum housing and secured by rivets, 24 rivets being used on the housing. The rivets by which the spring chairs are secured to the axle tubes are now



Side elevation of Franklin Series 11 *chassis showing many*

inserted from the inside and then riveted over on the outside. This permits of allowing more stock on the rivets and thus of securing a better job. The outer race of the rear axle bearing at the wheel end is now mounted in a cap which is flange-bolted to the brake support forging, instead of being mounted directly in this forging.

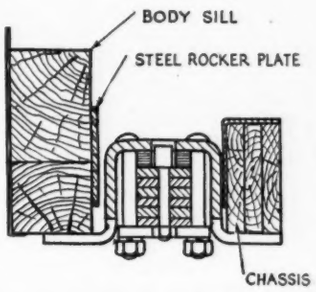
A change of considerable importance is the adoption of a drop frame, which, of course, involves greater difficulty with a wooden frame, as used in the Franklin, than with a pressed steel frame. The object in adopting the drop frame—it is hardly necessary to point out—was to get a generally lower construction. At the same time metal extensions to the frame were adopted which form a convenient support for the splash apron and bumper in front and for the fuel tank shield and mudguard protector at the rear. The drop of 3 in. is obtained in the wood frame sill and not in the steel extension. Besides this drop the depth of the central section of the sill has been increased by 1 in. Three-ply construction is still used for the frame, and while some of the plies are jointed by means of a Linderman machine, at least one of the plies extends the full depth of the sill. The sheet metal guard over the rear fuel tank is made strong enough to support the spare tire carrier.

Front Wheels Moved Forward

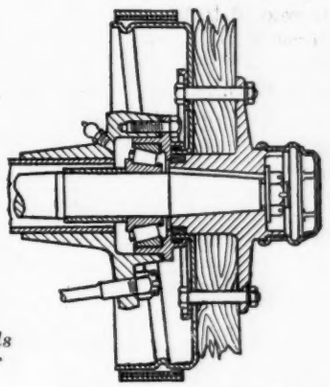
In order to carry out certain plans for the improvement of the appearance of the cars it was necessary to move the front wheels ahead. This involved some difficulty for the reason that in the previous model the fan housing, which is of considerable diameter, was located directly ahead of the front axle, and if the axle had been moved forward bodily it would have led to interference between it and the housing. This difficulty was overcome by curving the axle in the horizontal plane, moving the wheels ahead 4 in., and still keeping the center section of the axle behind the fan housing. This change increased the wheelbase of the car from 115 to 119 in.

The spokes of the wheels are now larger and the hub flanges are made larger in diameter, which change, the writer was told, was made chiefly to enhance the appearance of the cars. The ratio of the steering gear has been increased, to make steering easier with the balloon tires, and is now 8 to 1 instead of 6 to 1. The steering wheel now has wood spokes, and a slight change has been made also in the design of the throttle lever for the sake of greater neatness. This throttle lever is the only lever on the steering wheel, as spark control is entirely automatic except for the fact that there is a device on the instrument board which permits of retarding the spark a small amount. This, however, is not new with the Franklin. The emergency brake lever, located on the left-hand side, is now made of channel instead of tubular section and the slot in its sector is closed by two sheet rubber strips to prevent cold air entering the closed bodies through it in winter time.

Balloon tires have been adopted as standard equipment, the 5.25 by 21 in. size with all-weather tread being used. Inflation pressures of 26 lb. for the front and 32 lb. for the rear tires are recommended. To obviate any tendency to shimmying the steering gear housing is braced to the engine, and the left knuckle arm and the drag link have been made considerably stiffer. The muffler has been increased in size and is more efficient as a noise deadener without opposing greater resistance to the evacuation of the cylinders.



Showing mounting of body sills on extension of spring U-bar

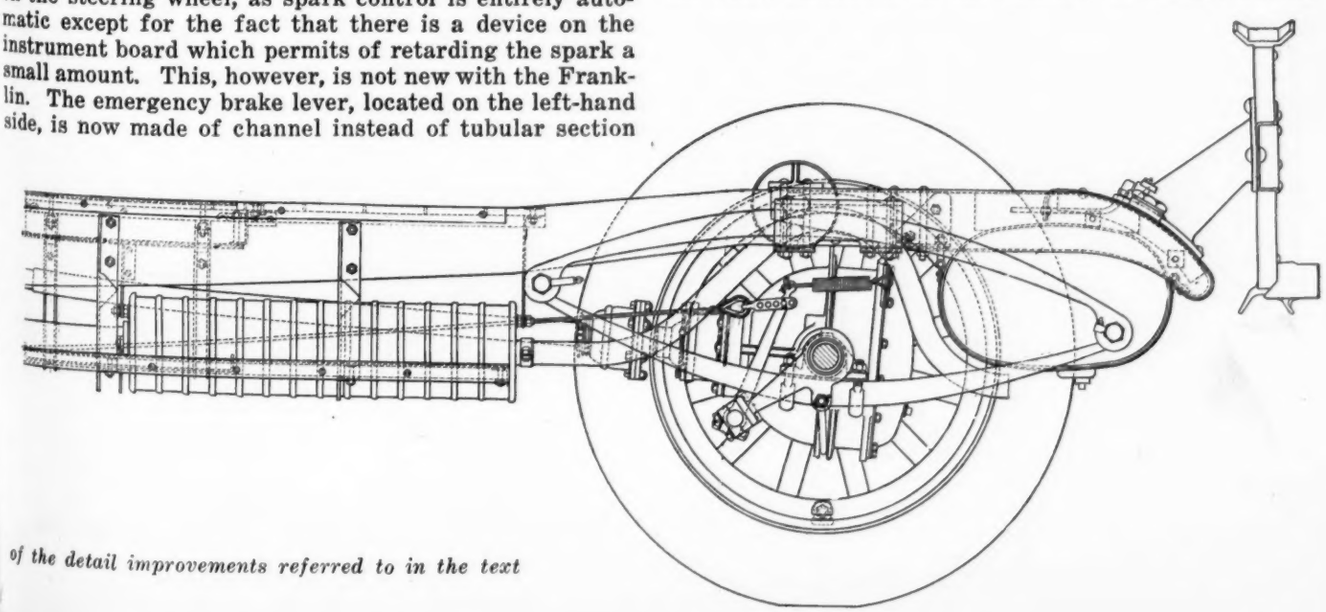


Rear axle ball bearing mounted in detachable cap

The new bodies, which are of de Causse design, are heavier than previous Franklin bodies, but the increase in engine power more than makes up for this increase in weight. To give an idea of the order of the increase in weight it may be stated that the sedan, which formerly weighed 2860 lb. in running condition, now weighs 3295 lb.

The most notable change in the bodies is in the forward end, the engine hood now being of substantially parallel form and hinged to a central rod, so the hood can be lifted from the sides in the usual way. This also has made possible the adoption of a brace rod between the two headlamps.

The floor boards and toe boards are now mounted in the body, instead of on the chassis, the change having



of the detail improvements referred to in the text

been made to obviate the development of squeaks. In this connection it is worthy of mention that a graphite packing is used where wood and metal come together in order to prevent squeaking at these points. The running boards have a brace extending across the car, which holds them firmly in alignment and gives a more rigid construction.

Mention was made in our news article of the greatly increased list of articles of equipment. One of the new items is an oil gage on the instrument board. This gage does not indicate the pressure of circulation, as is usually the case, but rather the amount of oil in the crankcase. It embodies a float in the oil well which connects to the pointer on the instrument board by means of a wire mechanism.

The silis of the body at the rear rest on extensions of the rear spring U-bar, as illustrated in the sketch reproduced herewith. This tends to balance the weight on the spring.

One feature of the body construction is the use of an imitation leather welt along all joints between sheet metal parts, as where the mud guards join the body and the running board shield.

A new type of headlamp has been adopted, a special Franklin design made by the J. W. Brown Mfg. Co. It has ruby jewels in a rear extension at the top and is fitted with a Bausch & Lomb non-glare lens. The wires to the headlamps outside the car are covered with leather. The headlamps are provided with two bulbs, for regular operation and dimming, respectively.

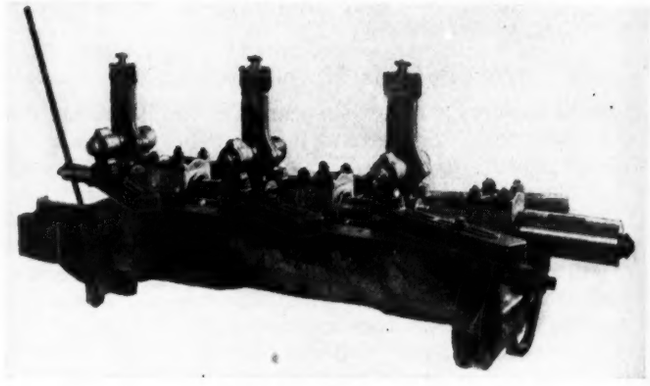
New Bearing Fitting Machine Operates by Hand or Power

A PAIR of new machines for shaving and burnishing engine bearings has been placed on the market by the Elk Sales Corporation of New York City. While the machines are operated by hand in refitting bearings in garages, it is claimed that they can be operated as well by power in production work.

The connecting rod bearing machine comprises a rugged base which carries an accurately machined arbor with expanding shells and an adjustable shaving cutter controlled by micrometer settings. It is made in a number of sizes, to take care of all automotive crankshafts. After the proper size hole has been obtained the arbor shells may be further expanded and the connecting rod revolved a few times to produce what is described by the manufacturers as a "perfect burnished and compressed, run-in" bearing fit.

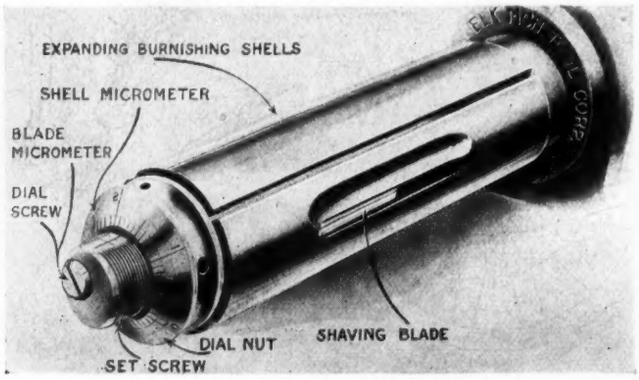
The arbor carries an attachment for squaring and dressing the edges of the connecting rod bushings and at the same time cutting the proper fillet. A device is also provided which makes it possible to align the piston pin with the crankshaft bearing without taking the connecting rod off the arbor, and another attachment serves for line-reaming the piston pin bushing and squaring it with the crankshaft. A separate attachment is used for line-reaming pistons with the bushings pressed in.

The main bearing machine consists of a hardened and ground line shaft carrying the same arbor, with proper shells and shaving cutter mounted upon it. This aligning bar is held in position by three compound brackets which can be very closely adjusted in accordance with the requirements of the job. A device is also included which permits of setting the crankshaft so as to ensure proper mesh of the timing gears. A separate cutter for trimming the edges of the main bearings and cutting the fillets goes on the main aligning bar. The line is completed by a special gage for aligning the crankshaft with the cylinder block.



New bearing fitting machine of Elk Sales Corp.

A CRANKPIN bearing testing machine built by Ricardo & Co. has been in use at the National Physical Laboratory for some time. It is capable of testing the bearings at speeds up to 4000 r.p.m. Load and speed are gradually increased until the bearing fails, and speed-load factors (product of the pressure on the projected area of the bearing by the rubbing speed) of 30,000 lb. p. sq. in. ft. p. s. have been obtained.



Shaving and burnishing arbor

Aligning piston with crankshaft

Just Among Ourselves

Traffic Accidents and Mental Reactions

PSYCHOLOGICAL factors in the safety problem now are getting some real attention. The mental reactions of drivers under given conditions of stress are being studied; tests are being conducted to see how long it takes the average man to apply his brakes after danger becomes evident; in various other ways the knowledge of the modern psychologist is being applied to the highway safety problem. Great results can't be expected from efforts of this kind in any short period. But the problem has to be tackled from that standpoint sooner or later and the work should be encouraged.

Publicity on Data of Sales and Production

DETAILED analysis of production and sales figures is one of the strongest influences for stabilization in the automotive field. Five years ago, when the boom period was at its height, such data had only academic interest to a majority of executives. Today study of output figures results in the burning of much midnight electricity and in hundreds of luncheon conversations every week. Such figures are an essential part of continued automotive progress. They can be of maximum value, however, only when they are available in detail for the entire industry and when they are accurate. Full publicity as regards production and sales is given now by companies producing over 90 per cent of the entire output of the industry. Why not make it 100 per cent?

Definition of Stock Car Is Simplified

STOCK car contests have been relatively few in recent years, partly no doubt because of the rather complicated regulations surrounding them. Now that the A. A. A. contest board has simplified the rules, more activity may result in this field. The new regulations, we understand, make it necessary only for the car manufacturer to approve the entry. Then the A. A. A. contest board selects a car of the particular make from any dealer's salesroom in the country. Tuning up will be done under the supervision of the contest board. That's all there is too it. It would seem to be a logical and simple method of saving argument about what is or is not a stock model.

Effect of Bootlegging on Automobile Design

WE said something about a renaissance of the roadster a few weeks ago. It was our idea that this model might grow in popularity as the closed car became the utility and the open the sport type. But we find we were all wrong. We have been informed that a legitimate bootlegger is authority for the statement that the roadster has become more popular because it is the model best adapted to carrying hootch without undue ostentation. Further he says that his fraternity has analyzed in detail the dimensions of the rear compartments of every roadster model built and that the popularity of certain makes is due to their great cubical capacity. You can take either hypothesis you like. Either way it looks like a good year for the roadsters.

Gas Tax Cancels Registration Reciprocity

REGISTRATION reciprocity exists between many States. A driver holding a license in one state is given the courtesy of driving without additional payment in another state through such agreements. When a gasoline tax is levied on motorists it serves to cancel out many of the reciprocity benefits, for the traveling motorist must pay the tax on any gasoline he buys in the state he visits regardless of agreements. Add that to your store of useless information.

When Is an Engineering Problem?

WHEN do the engineers worry most about design—before the car is out or after the service records begin to come in? H. L. Horning, the S. A. E. president, said a few weeks ago that things become engineering problems about one or two years after they have been adopted by a number of cars. A glance over some phases of automotive engineering history indicates that he isn't far wrong, despite the fact that careful testing before announcement is the rule today. One sales manager, in announcing a new model to his dealers recently, told them that "this car is ready to be operated by the public. We have paid for our own experimental work and we aren't expecting our buyers to carry that burden for us." This attitude has become common in the industry. But even under the best testing methods, there are some things about a car that can't be altogether predetermined.

Motor Cars Find New Ways to Help

AUTOMOBILES every day are finding wider transportation fields in which to work. The Pennsylvania Railroad has withdrawn from service about 1500 hand cars and is using 1000 motor cars in their place to transport section gangs from one place to another. The movement to motorize the track forces began several years ago, but only recently has it been extended over the entire system. Thus the motor vehicle has found another way in which to help the older forms of transportation to perform better and more efficiently their constructive service.

N. G. S.

All Gear Shifting Eliminated on New Gas-Electric Yellow Coach

Speed variations depend solely on throttle position. Smooth and rapid acceleration is possible. Chassis developed for Philadelphia Rural Transit Co., is modified form of Z-type.

By Herbert Chase and A. H. Packer

THIS description gives specific details of the actual construction to be employed by the Yellow Coach Mfg. Co. in its latest Z-type gas-electric bus chassis.

Descriptions published at the time that a large order for these vehicles was placed by the Philadelphia Rural Transit Co. referred chiefly to an experimental chassis which differed materially in most important structural features from that here described, although a similar electric transmission system was used.

In view of the various novel features incorporated in this development, we believe our readers will find the article of more than usual interest.

SIMPLICITY of control with speed changes depending entirely upon throttle position, so that the driver need not remove his hands from the steering wheel except in an emergency or when electric brakes are to be applied on a long grade, combined with ability to secure smooth and rapid acceleration, are features of the modified form of the Z-type chassis which has been developed by the Yellow Coach Mfg. Co. of Chicago to fill the large order for gas-electric buses placed with this concern several weeks ago by the Philadelphia Rural Transit Co. and announced in these columns at that time. Drawings and details concerning the construction of this chassis have become available only recently and are given in the following pages.

Adoption of the electric transmission system has involved numerous chassis changes, notably in the rear axle and control units. The rear end of the chassis frame has been extended with integral side rails to support the loading platform, which is about 14 in. from the ground. Height of the main frame is 20 in. when the vehicle is loaded to full capacity.

Track in front has been increased from 72¼ to 74¾ in. in order to make possible a short turning radius with the longer wheelbase, which has been increased from 200 to 230 in. Other chassis changes will be apparent by comparing the drawing here given with that published in our issue of Aug. 16, 1923, page 317. Side rails of the frame now measure over 30 ft. in length, are kicked up over rear axle and swept downward just in front of the dash.

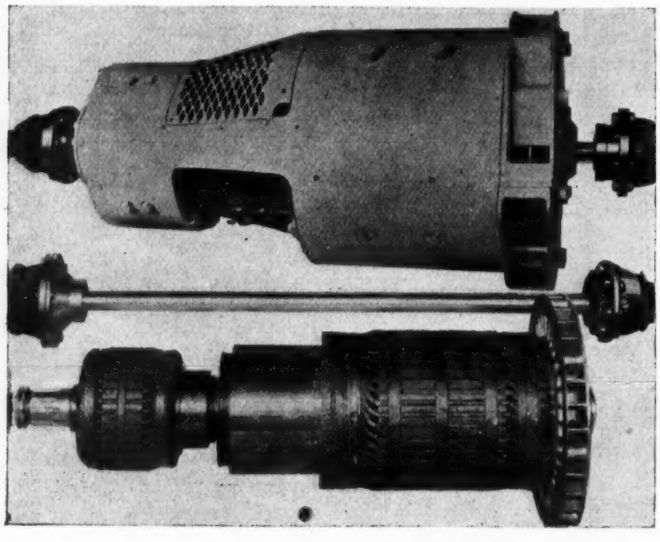


Fig. 1—Generator exciter unit, supplied by the General Electric Co. for use on the Yellow Coach gas-electric bus. Both armatures are fastened to a quill, through which runs the shaft which is connected by Spicer universal joints to the engine and to exciter end of the hollow shaft

Tubular cross-members are used, as heretofore, but their relative position now is changed and a longitudinal tubular member serves to support the right side of the engine as well as to convey the exhaust gas backward to a transverse tubular member just forward of the center of the frame. The exhaust enters the latter member, which, together with the other tubes, provides sufficient volume for expansion to make a conventional muffler unnecessary, and flowing through this enters a tail pipe which carries it to the extreme rear end of the chassis.

Power is furnished by the six-cylinder 4¼ x 5½ in. Yellow sleeve valve engine which was described in AUTOMOTIVE INDUSTRIES of Oct. 6, 1924. This engine develops 108 hp. at 2200 r.p.m. and is connected positively to the rear end of a generator exciter unit, shown in Fig. 1, by a universal joint and a propeller shaft. The latter runs through the hollow shaft or quill on which the armatures of the exciter and generator are mounted.

This arrangement is used in place of direct connection to a solid armature shaft in order to secure the same form of resilient drive which results from the use of a fairly long shaft between engine and gearset and also to relieve the bearings of the engine from stress which would be set up in the case of any lack of alignment between engine and armature. The long shaft and joint compensate for any misalignment and make it possible to mount the engine and generator separately, each with three points of support.

The entire output of the generator is applied directly to two 20-hp. electric motors mounted amidships, one at each side of the frame and suspended at three points from tubular cross-members. Each motor drives to the rear wheel on its side of the chassis by a propeller shaft

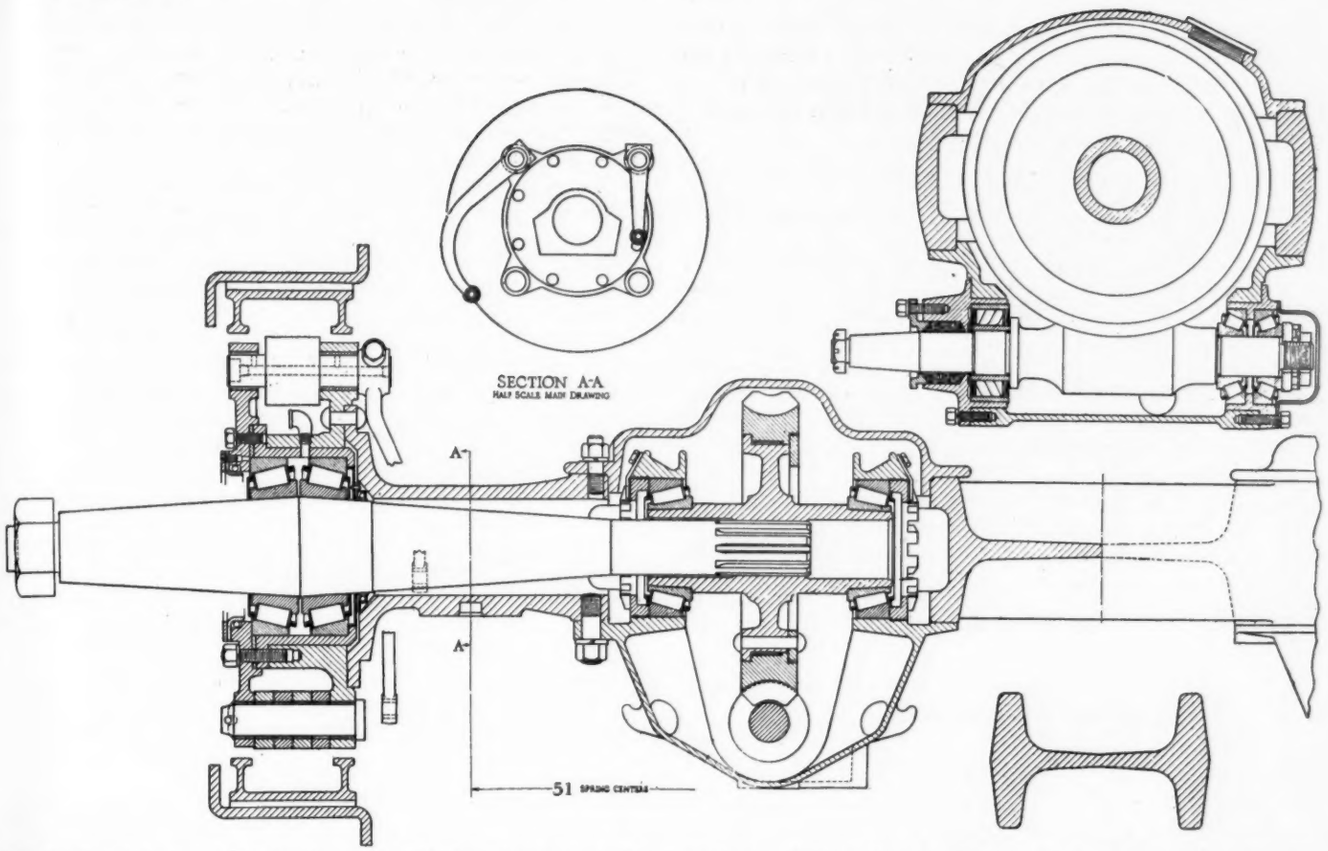


Fig. 2—Special rear axle developed by Timken for use on the gas-electric Yellow Coach. The housing which carries the two underslung worm gears is a one-piece forging, one of the largest and most complicated ever made for automotive purposes

with two Spicer universal joints and an underslung worm gear, no differential being required.

Timken has developed a special rear axle of the semi-floating type, shown in Fig. 2, for use under this chassis. This axle has a one-piece drop-forged housing comprising two banjo sections for the worm gear units connected by webs formed into a beam of H-section, and two tubular end pieces with integral spring seats and brake anchorages, through which the two live axles pass.

All but two of the bearings in this axle are of the Timken taper roller type. Wheel and rear worm bearings are arranged in pairs in order to take thrust in either direction, and the wheels can be removed without disturbing bearings or live axles. Hyatt bearings support the front ends of the worm shafts. Worm gear carriers are underslung and the gearing itself if the "F. J." type. This axle provides a noiseless drive and gives the required road clearance, at the same time possessing the strength necessary to carry the load involved in a vehicle designed to seat 67 passengers. The worms give a reduction of 11 to 1.

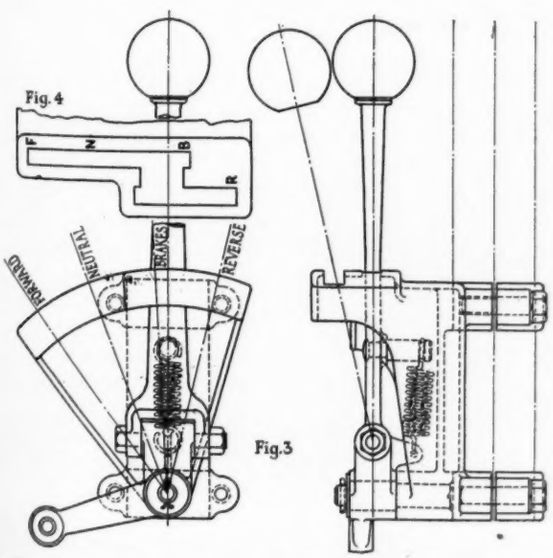


Fig. 3—Control lever which is mounted on steering column. It can be set in any one of the four positions indicated on the gate. Fig. 4—Forward, neutral, braking and reverse

Ease of Control Attained

A factor of prime importance leading to this design of chassis is the ease of control and the rapidity and smoothness with which it is possible to accelerate. There is, of course, no clutching and declutching and no changing of gears.

Once the vehicle is in motion the driver never need take his hand off the wheel except to apply the emergency brake. When the vehicle comes to a stop the control lever is moved into neutral position.

This lever, shown in Fig. 3, is mounted on the left side of the steering column and is guided by a gate, Fig. 4, which affords four positions for the lever: forward, neutral, braking, and reverse. For forward motion the controller lever normally is moved to the extreme forward position and left there, but should a long down grade be encountered the controller is moved to braking position, in which case the motors, being driven by the momentum of the bus, become generators, the output of which is absorbed in resistance units provided for the purpose. Speed control is entirely by throttle. The controller is used only to change direction of motion or to throw the electric "brakes" into service.

Braking during the normal operation of stopping is done by pedal operated brakes on rear wheel drums of

high carbon steel, which serve also for hand brakes applied by a lever which is pushed forward to apply the brakes. Both brakes are internal expanding and are of the usual Timken duplex pattern. Each pair has nearly 300 sq. in. of friction surface.

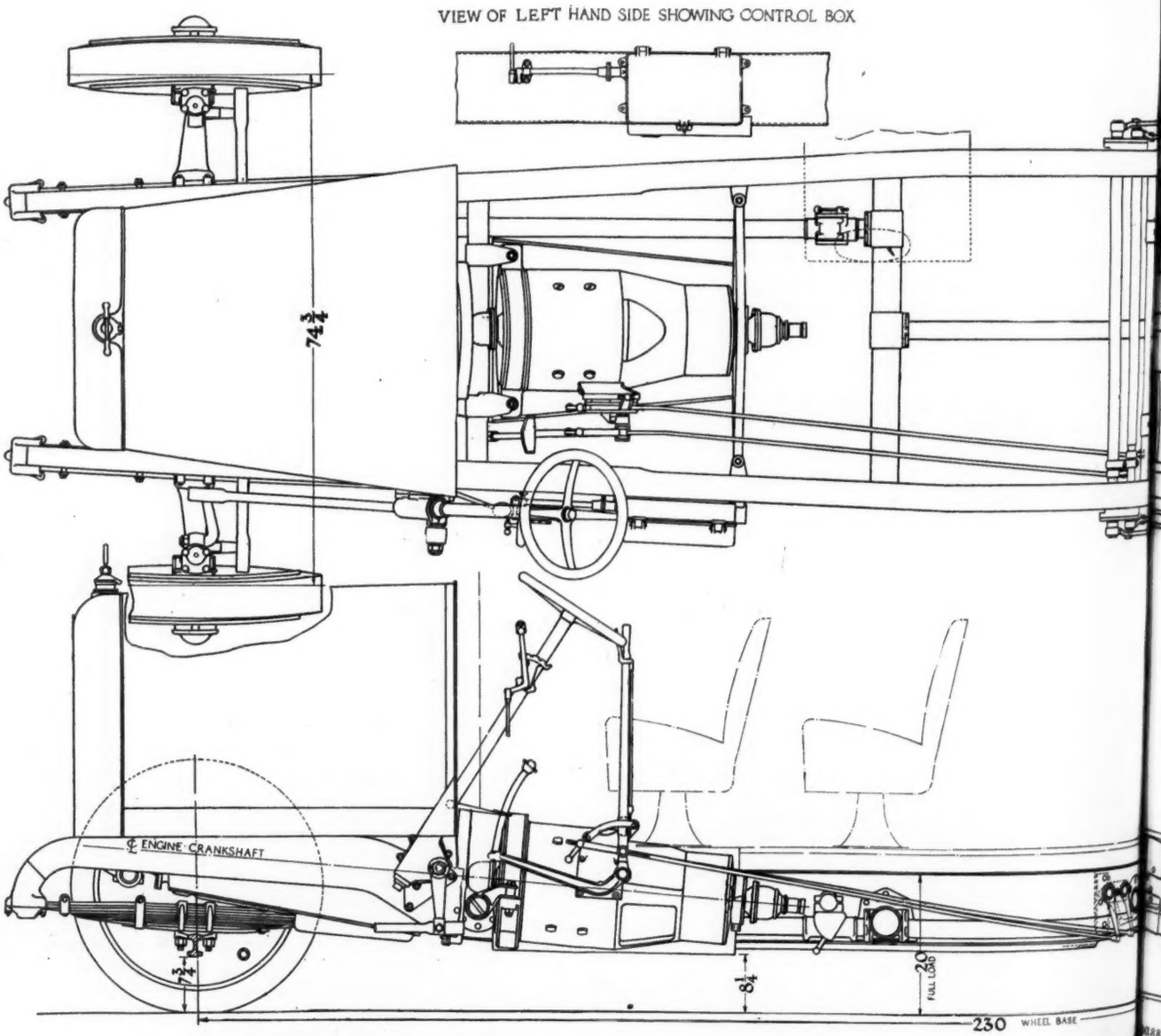
Battery Supplies Exciter

A wiring diagram of the electric transmission system is shown in Fig. 5. The 12-volt battery used in connection with the conventional two-unit starting and lighting system also serves to supply field current to the generator exciter. In starting, the operator of the coach closes the ignition switch and operates the starter switch as is common practice in any automobile. Closing the ignition switch also sends battery current into the exciter field and when stopping the opening of the ignition switch also opens the exciter field circuit, so as to prevent discharging the battery.

The lower left portion of Fig. 6 shows the electric power circuits schematically. When the engine starts, the exciter picks up immediately, on account of the excitation of its field by battery current. In addition to the coil for battery current, each field of the exciter carries also a coil for self-excitation, and a portion of the current generated by the exciter flows through this coil. The major portion of the current generated by the exciter passes through the field coils of the generator, which latter is not self-exciting, having no shunt circuit across its mains.

The generator, however, is provided with a differential series winding, which serves the purpose of limiting the load on the generator when the load on the motors increases. For instance, when the coach starts on an upgrade, the motors naturally will draw more current to develop the necessary torque; less voltage is required, because it is natural that with increasing draft the speed of the coach should decrease. The reverse series winding lowers the voltage when the current draw is increased and thus tends to keep the output of the generator constant for a given engine speed.

Separate excitation is used to make this method of operation possible, for if self-excitation were attempted, as soon as the voltage of the generator began to pick up on the residual magnetism of the field, a current would start flowing through the reverse series coil and kill this magnetism, hence it would be difficult, if not impos-



Plan and side elevation of the Yellow Coach gas-electric bus chassis for carrying double-deck body extended to carry the rear loading platform. Three-point mounting of electric units is shown clear

sible, to get the generator to pick up. Another reason for the use of an exciter is that, since it gives constant field strength, the voltage builds up more gradually and hence the load does not come on the engine so suddenly.

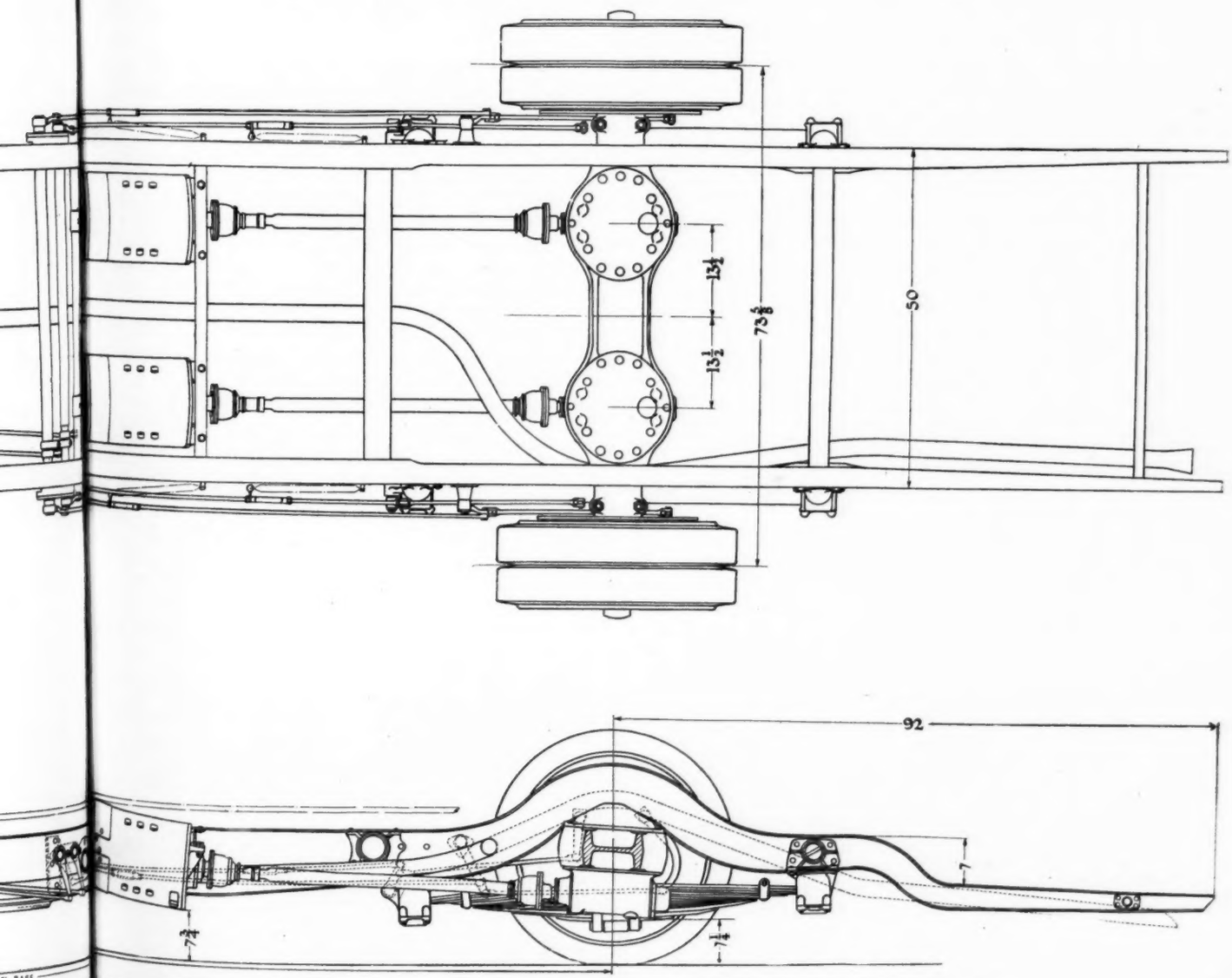
Reference to the upper right portion of Fig. 6 shows that the two driving motors are connected in parallel with each other for the forward position of the speed lever, and that the resistance is short circuited and therefore cut out. The motors themselves are of the series wound type. The sketch just below this one shows the circuit arrangement for electric braking. For this the field coils of the motors are reversed, hence the motors tend to turn backward, and in order that the action may not be too severe the two motors and the resistance all are connected in series across the generator terminals. The electric brake is not intended to stop the coach, for mechanical brakes are provided for that purpose, but chiefly to hold the machine in check on long down grades where the mechanical brakes are likely to overheat and wear out their linings.

When the control lever is in the reverse position the circuits are similar to those when braking, except that the resistance is cut out. Accidental engagement of the reverse drive when trying to apply the brake is made impossible by the gate construction, Fig. 4. Brake action is obtained by pulling the lever through neutral, while the reverse is engaged by moving the lever forward slightly and then to the left and back.

Greater Riding Comfort

The electrical method of power transmission employed in these coaches is believed to have a number of advantages over the conventional mechanical type of drive. For example, smooth acceleration is obtained, for there is no letting in of the clutch and no shifting of gears. This means more comfort for the passengers, either seated or standing. From the driver's standpoint the operation is simplified, for the hands may be kept on the steering wheel except when using the emergency brake or when using the electrical brake or reverse. This is important in heavy traffic. It also is said to be possible to get better acceleration with the same engine speed or the same acceleration with lower engine speed.

It is the belief of Philadelphia Rural Transit Co. officials that the use of an electric transmission in place of a gearset will add materially to the life of the vehicle. Should this belief be justified by results, it is certain to effect the future design of bus chassis.



...assengers. Note the side rails which are made in one piece and are over 30 ft. long. They have been ...pecial Timken rear axle has two worm gears giving 11 to 1 reduction. No differential is required

Fig.5

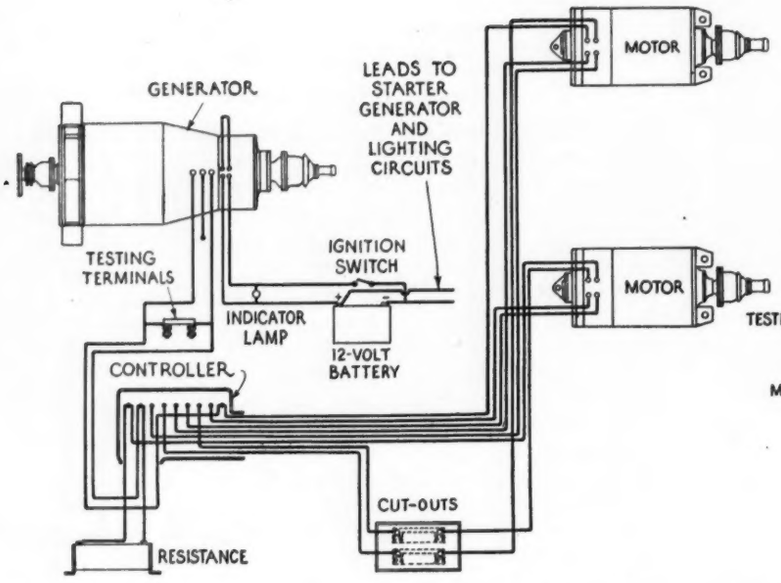


Fig.6

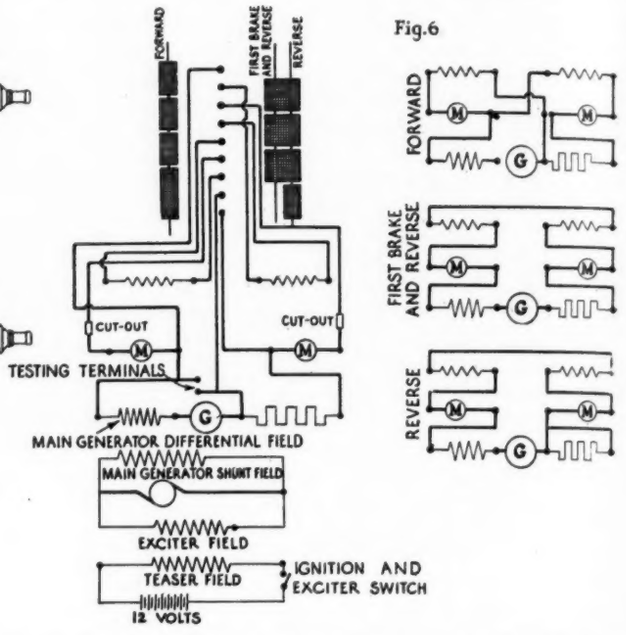


Fig. 5—General wiring diagram for Yellow gas-electric bus. The battery is used for the usual starting and lighting system and also to supply current for ignition and for the field circuit of the exciter. Fig. 6—Schematic diagrams of wiring in various positions of control lever

Rate of acceleration depends on the motor and generator characteristics. Smooth operation, therefore, is not so dependent on the skill of the driver. Another advantage is that the engine cannot be stalled, for a reduction in engine speed merely allows the engine to idle, and at idling speed no appreciable current is delivered to the motors. On the other hand, the same characteristics make it impossible to race the engine unless the control lever is placed intentionally in the neutral position, which position is provided to facilitate engine testing.

Electrical connection of the two driving motors, which are in parallel when running forward and in series when running backward, gives the effect of a locked differential, which is especially advantageous in winter. Greater gasoline mileage is claimed for this type of drive, inasmuch as the engine is operated at loads and speeds which give high average thermal efficiency.

The generator and each of the two motors are suspended under their supporting brackets by means of three vertical bolts, so that when repairs are required the unit needing attention can be lowered into a pit. This makes it unnecessary to do any extensive repair work through openings in the floor of the coach. Small jobs, such as brush replacement or sandpapering of commutators, however, can be done readily through small trap doors in the floor.

Accidents Reduced by 4-Wheel Brakes

AN important reduction in the number of accidents, a slight economy in tire wear on city streets and an absence of mechanical adjustment are the outstanding advantages of four-wheel brakes as proved by fifteen months' experience with 2500 taxicabs running in Paris.

The first taxicabs to be equipped with brakes on the front and rear wheels were those operated by the Compagnie Generale des Voitures à Paris, which builds and operates its own machines. According to the chief engineer of this company, the rear tires are now giving the same mileage as the front tires on city streets.

Records show that the company's cars and light trucks doing a general out-of-town service do not show tire economy which can be traced to four-wheel brake equipment. "Since we fitted four-wheel brakes," declared M. Vazel, "really bad accidents are rare. Front wheel brakes have thus proved their value as a factor in public safety and as a money earner for their company."

The vehicles operated by this company are fitted with mechanical brakes having internal shoes of 2-in. width operating inside 13.7-in. drums. There is independent hand control for the rear wheel brakes. Experience has shown that the best results are obtained without equalizers, for if a control rod breaks the car can continue to operate with three or even only two sets of shoes.

6000 Miles Without Adjustment

Brakes are not touched unless the driver reports that they are not functioning normally. It is frequent for cabs to run more than 6000 miles without any adjustment having to be done on their brakes, and it is often found that after 34,000 miles running on Paris streets the brake linings are good for an equal distance. That is attributed to the generous size of the drums and the scientifically correct layout of the brakes.

This company is now working on the problem of automatically diminishing the braking effect on the front wheels when making a turn. Under this improvement, both front wheel brakes are partially released when the wheels are swung over to left or right and the brakes are again automatically applied as soon as the front wheels assume a straight ahead position. In this way it will be possible to give the drivers still more powerful brakes, with the knowledge that no damage can occur by unskilled use. At present drivers tend to become overconfident and because of the possibility of danger on turns they are not given the maximum braking power.

A NEW CO_2 recorder known as the Apex has been brought out by the Uehling Instrument Co. of Paterson, N. J., manufacturer of the Uehling recorder. The new instrument is said to sell at less than half the price of other instruments used for the same purpose, and it is claimed for it that it will operate accurately without any attention or adjustment other than the changing of charts and the renewal of dry absorbent, which should not exceed 10 minutes weekly.

Brill Builds Larger Rail Motor Car with Five Forward Speeds

New model is powered with engine of 190 hp. and can make 58 m.p.h. with loaded trailer. Transmission is inclosed in a hollow swing bolster. Five forward speeds. Friction clutch.

Passenger compartment looking toward baggage space

A NEW and larger design of rail motor car with mechanical transmission has been completed by the J. G. Brill Co. of Philadelphia, a firm which has been active in the rail motor car field practically since the beginning of this form of transportation. The new model is not merely an enlargement of the one previously built but embodies some entirely new design features, particularly in connection with the transmission and drive.

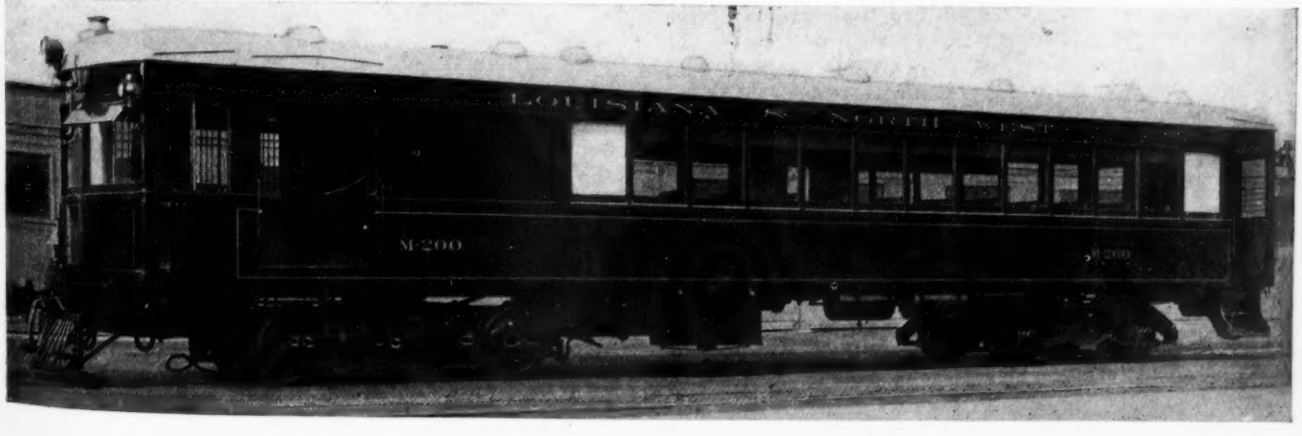
The new car, referred to as Model 75, has seating capacity for 59 and can haul a trailer accommodating 60 additional passengers. The drive is through both axles of the forward truck. The engine used is a six-cylinder design of 6 in. bore and 7 in. stroke and develops 75 hp. at 500 r.p.m., 150 hp. at 1000 r.p.m. and 190 hp. at 1300 r.p.m. Dual valves are used for both inlet and exhaust, to keep down the heat stresses in the exhaust valves and the inertia stresses in both sets. A multiple disk type of clutch is used and is incorporated with the flywheel. A clutch brake is provided to facilitate gear changes. Automotive practice has been followed throughout the design, but the parts are made heavier than is customary in this practice to keep down maintenance expenses.

A cylindrical fuel tank of heavy gage metal with a capacity of 100 gal. is mounted under the car, and fuel is fed to the plain tube type carbureter by the Oil-Vac system. Ignition is by two separate high tension magnetos with impulse couplings. Complete electrical equipment is provided, including a 32-volt generator of 1000 watts capacity fitted with an automatic cut-out and a voltage control mechanism, and a starting motor driving to the steel ring gear on the flywheel through a Bendix drive of the outboard type. The cooling water is circulated by means of a centrifugal pump through a radiator comprising a finned tube core and cast tanks and frame. The core is demountable.

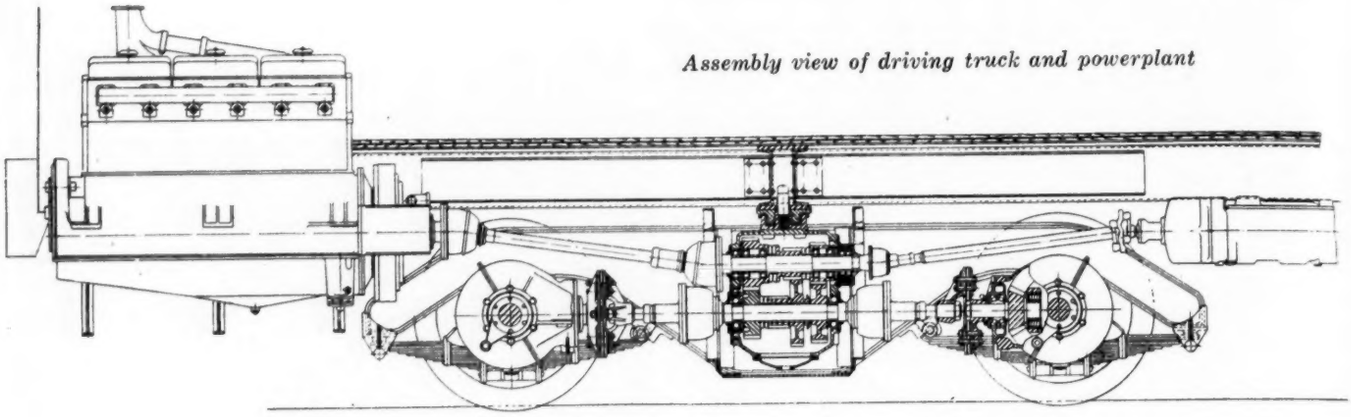
Clutch Is Brill Design

The friction clutch is of the Brill Company's own design and of the dry disk type. To make quick changes of gear possible it is provided with a clutch brake. Engine and clutch form a power unit which is so mounted in the car body that it can be readily removed as a whole.

One of the most original features of the new design is the transmission—a five forward speed combination which is housed in a hollow swing bolster. Power is transmitted to this gearset through a shaft incorporating two metal type universal joints. There are three parallel shafts in the transmission, and the five forward speeds are obtained by means of positive jaw clutches and not by shifting the gears themselves. For the first and second speeds the motion is transmitted from the shaft connected to the engine, to a pair of gears that are loose on the shaft that is connected to the axles, thence to a lay shaft and thence back to the shaft connected to the axles,



The new Brill Model 75 rail car seating 59 passengers



Assembly view of driving truck and powerplant

so that a triple reduction is obtained. For the other three speeds there is only one reduction in the gearbox, from the shaft connected to the engine to that connected to the axles. Anyone of these three speeds can be used continuously.

Gears and shafts are of carbonized and oil-tempered nickel steel. The gears are cut with helical teeth and remain in mesh constantly, engagement being by jaw clutches. The main gears have a face width of 3 in. There is a "through" drive from the shaft connected to the engine, to a Westinghouse air compressor, the shaft connecting to the compressor containing one metal and one fabric type universal joint. All shafts of the gearset are mounted in anti-friction bearings.

From the tail shaft of the transmission the drive is to both axles of the forward truck through propeller shafts with two universal joints each, one metallic and the other of the fabric type.

Equal Speeds in Both Directions

From the description of the transmission given above it will have been noticed that it gives only speeds in one direction and does not provide for reversal of motion. However, by means of a special reverse gear incorporated in each driving axle the car can be driven at equal speeds in both directions. The driving spiral bevel pinion meshes with two bevel gears on opposite sides of it, which are normally free on the axle but can be made rigid thereon alternately by means of a jaw-type clutch. At an engine speed of 1000 r.p.m. with standard gear ratios the car speed varies from 5.4 m.p.h. in low gear to 44.8 m.p.h. in high, and at an engine speed of 1300 r.p.m. the car speed varies from 7.02 m.p.h. to 58.4 m.p.h.

The trucks used on this car also are of rather novel design. There is one four-wheel truck at each end of the car, the drive being through the four wheels of the forward truck. Both trucks are pivoted to take curves of not less than 150 ft. radius, measured to the center of the track. Regular M. C. B. outline steel-tired wheels of 33 in. diameter are used. Those of the driving truck are of the cushioned drive type in which the driving force is transmitted through rubber cushions. Truck frames of the built-up type extend in the fore and aft direction over each axle. On the driving trucks these frames are inside the wheels, while on the trailing truck they are outside. Each end of each truck side frame is supported on a semi-elliptic silico-manganese steel spring measuring 48 by 4 in.

Instead of being pressed on the axles, the driving wheels are held in place by two split taper collets, which arrangement makes it easy to remove them by means of special puller. The axles are of heat treated alloy steel and mounted in Timken roller bearings.

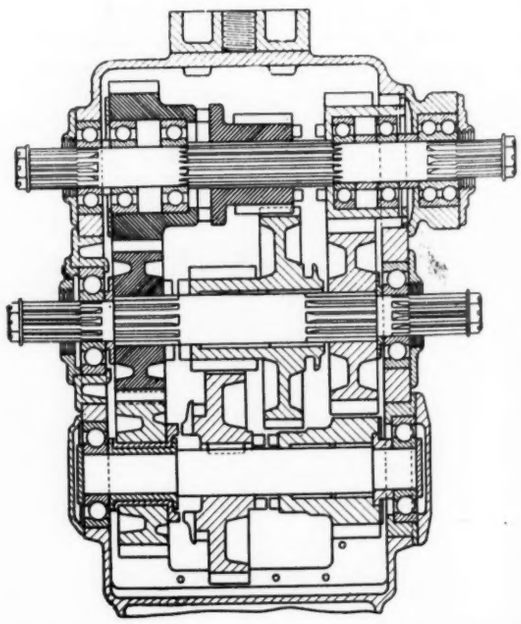
Between the side frames extends a cast steel swing bolster supported from the frames by shackles. This swing bolster forms the transmission housing and support and also supports the car body. It is provided with renewable center plates and side bearings.

The design of the trailing truck is similar to that of the driving truck, except that the power transmission features are missing. Such parts as wheel bearings, brake shoes and brake linkage are interchangeable between both trucks. There are shoe brakes on all of the wheels, which are applied by Westinghouse air cylinders through an engine truck type linkage. There is a conductor's brake valve in the rear vestibule, while a handbrake staff is located at each end of the car. The mechanically driven Westinghouse air compressor is controlled by an air governor.

One of the features of the mechanical design is that all units involved in driving the car are mounted either on the power plant or the driving truck, both of which units can be readily removed from the car.

The car body conforms closely to regular steam line passenger equipment practice. There are two ten-in. channel center sills which extend the whole length of the body and form the main supporting members. The framework of the body consists of T section posts, to which the outside steel side sheets and letter board are riveted.

The overall length of the car body is 55 ft. Of this



Sectional view of transmission shown in high gear

space 16 ft. 3 in. is devoted to the baggage space and engine room, and 4 ft. to the rear vestibule, leaving about 34 ft. for the passenger compartment. In each side of the baggage compartment there is a 4 ft. door opening. The vestibule doors have a clear opening of 2 ft. 5 5-8 in. and the vestibule is entered by four steps on either side, the openings over which are closed by trap doors.

The seats in the passenger compartment are of the stationary type, seating two passengers each, and are provided with arm rests on the aisle, which latter is 30 in. wide. Continuous parcel racks are fitted on each side of the passenger compartment. The weight of the car complete is 53,000 lb.

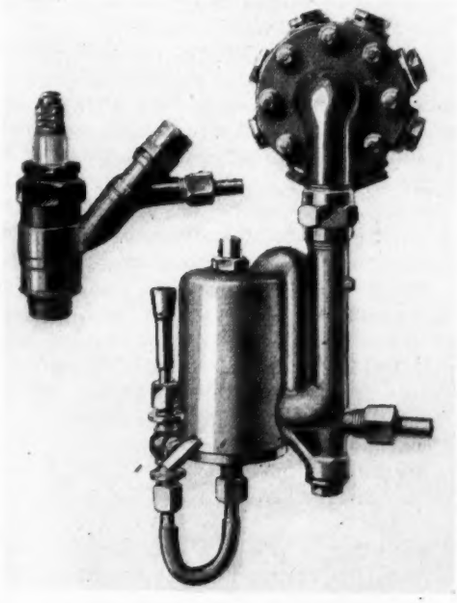
Tests with this car are said to have shown that without trailer it can accelerate up to 25 m.p.h. at the rate of one mile per hour per second. It is calculated that the maximum speed of 58.4 m.p.h. may be maintained with a trailer on level track or slight grades.

Self-Starter of Charge-Injection Type is Introduced

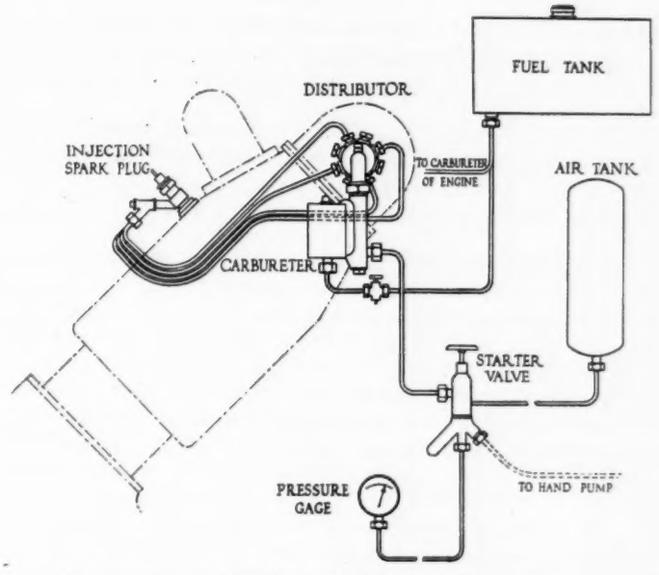
A SELF-STARTER for internal combustion engines, of the charge-injection type, has been brought out in France by M. Saintin. It comprises an air tank in which an air pressure of 70 lb. per sq. in. can be pumped up by means of a tire pump, a control valve by means of which the flow of air to the cylinders can be controlled, a special starting carbureter and a distributor. The latter must be driven from a rotating member of the engine making one revolution to every two of the crankshaft.

Supposing the engine to be at rest, if the starter valve is opened, air from the storage tank will pass through the carbureter, where it will take up sufficient gasoline to form a combustible mixture, and through the distributor to the cylinder or cylinders in which the piston happens to be on the power stroke, as it were. A drop in pressure naturally occurs as the air passes from the storage tank to the engine cylinder, but the charge is still under compression. It is then fired either by means of a small starting magneto which is turned by hand, or by operating a vibrator, if coil and battery ignition is used. This gives the impulse necessary to turn the engine over the next compression.

The charge enters the combustion chamber of the engine through a check valve which can be screwed into the boss for the priming cock, or if no boss is available a special spark plug designed by M. Saintin can be used, which is provided with a fitting into which the check valve can be screwed.



Special carbureter and distributor
Special spark plug for starter connections



Diagrammatic drawing of Saintin engine starter

The Saintin self-starter has been applied particularly to aircraft engines and we understand that it has been approved by the Engineering Department of the French Air Service and has been supplied to both the French Air Service and the French Navy.

M. G. Tremel, a representative of the manufacturer, is at present in this country and hopes to interest American manufacturers in the rights to the starter.

Rolls-Royce May Use Air Brakes

IT appears that Rolls-Royce are considering the possibilities of air pressure in connection with the application of four-wheel brakes; at least they have taken out a patent in England on a system whereby the throttle of the engine automatically closes in case the air pressure fails, thus indicating to the driver that he will have to depend upon the hand emergency brake. The pivot of the accelerator pedal is normally held in position by the air pressure acting on a diaphragm in a chamber against the pressure of a spring, and when the air pressure fails the spring will move the pivot to such a position that the throttle will remain closed even though the accelerator pedal be fully depressed.

Buses Used by Railways Increase 229% in 19 Months

Importance of motor units in general transportation scheme officially recognized by American Electric Railway Association at mid-year conference in Washington, D. C.

By H. L. Cobb

"THERE is a place for the motor bus in transportation as an auxiliary of, or supplement to, and, in some instances, substitute for electric railway lines."

This was the substance of the convictions unanimously subscribed to by the Executive Committee of the American Electric Railway Association at the mid-year conference and dinner of the association in Washington, D. C., Feb. 17.

As evidence of the growing importance of the bus in the electric railway field, it was stated during the course of the proceedings that the number of buses operated by railways had increased 229 per cent in the nineteen months since October, 1923.

The official conclusions of the committee follow:

"Recognizing that there is a place for the bus in local transportation, the Executive Committee of the American Electric Railway Association subscribes itself to these convictions:

"1. No medium has yet been developed which alone can take the place of the electric railway in moving large numbers of persons during morning and evening rush hours in cities. There is a place for the bus in transportation as an auxiliary of or supplement to and, in some instances, substitute for electric lines.

"2. Electric railways are in the business of providing transportation in their respective communities. It is their duty to supply all local transportation, both by electric railways and buses essential to good public service. When supplying such service by rail cars, buses, or both, they should be protected against competition in the operation of all such lines.

"3. Buses should be regulated by law as common carriers and the effort to make bus regulation uniform throughout the United States continued and encouraged.

"4. Both buses and electric railways should bear proportionate taxes and other public obligations fairly chargeable to them as public carriers."

In addition to this statement of principles regarding the motor bus, much of the time of the convention was devoted to listening to speeches dealing with the bus problem as it affects street railways and an open forum was turned over to "Motor Buses—When, Where and How Should They Be Used by Electric Railways?"

To obtain the maximum of service transportation in any city, trolley cars and automobile buses should be operated under the same control, Guy E. Tripp, chairman of the Westinghouse Electric and Manufacturing Company, told the railway association representatives.

Service Offered by Bus Is Distinct

"The kinds of service offered by buses and by trolley cars are quite different," said Mr. Tripp. "Buses are especially adapted to de luxe service in cities and to serving suburban regions where it does not pay to install trolley systems. Their operating cost is relatively high. On the other hand, nothing has yet appeared which equals the trolley car for serving great numbers of people at a low cost.

"It seems clear that the people will demand both classes of service. There is nothing unique in that. You may today go to New York in a perfectly comfortable day-coach, or by paying more you may ride in a parlor car with the luxury of a Nabob.

"What are some of the superior enjoyments offered by the auto bus?

"First comes the relief from the nervous strain of being compelled to board and alight from a vehicle standing in the middle of the street—a feat which only a very few years ago could be lightly attempted by anyone in possession of his five senses, but which today in all our large cities has become an adventure to all those who have not become hardened to it by constant exposure.

"Second comes the enjoyment of rolling noiselessly along upon pneumatic rubber tires with an occasional toot of the horn, as compared with the roar of metal against metal and the frequent clang of the gong.

"Third comes the comfortable assurance that you will get a seat because when the seats are full many bus companies will take on no more passengers.

"Fourth, the bus claims speed, and I am bound to say that on well-paved city streets I see no reason to dispute the claim.

"Fifth, the matter of public preference for the vehicles themselves from the standpoint of design. I am not so sure about that. Some of the buses are very beautiful, but a street car could also be made just as beautiful.

"However, the uncontested affirmative side of a case

THE American Electric Railway Association officially recognizes the bus as an important factor in meeting the transportation needs of the public.

This is only one example of the headway that the bus has made as a common carrier in the last few years. Every indication points to a much wider utilization of its many obvious advantages in the future.

does not always present the true picture. The complete success of the opposing counsel in this case emboldens me to ask the bus a question and request a categorical answer.

" 'You can doubtless serve some of the people all of the time, and all of the people in some places, but can you serve all the people all the time in all places?'

"The answer must be 'No,' and that opens the way for classification, segregation and other forms of dissection, and the important thing to bear in mind is that the thing to be classified is mass transportation—daily and regular moving of the masses of people from one or more points to one or more other points.

"When the bus has completely occupied its field, there will still remain millions of people to whom a low rate of fare is a necessity—millions who must be served at those most important hours of the day—the rush hours—and nothing has yet appeared to perform this service except the electric car."

Dahl Shows Bus Growth

A comprehensive discussion of the use of buses as auxiliaries to street railway systems was given before the convention by T. R. Dahl, representative of the National Automobile Chamber of Commerce of New York.

"There is no doubt of the bona fide operation of motor buses by electric railways today," said Mr. Dahl. "There has been in the past a strong suspicion among motor bus operators that electric railways began bus operations for the purpose of killing that kind of public passenger transportation, having accomplished which it would again only furnish transportation by rail.

"They suspected that the railways put 'trick' in 'electric' as a warning to its competitors. Present operations by electric railways have effectively removed the suspicion. There is some discrepancy among experts as to the exact number of buses being operated by electric railways today and as to how many electric railways are engaged in bus operation. The exact number is, for comparative purposes, relatively unimportant.

"What is important is showing the growth of the use of the bus by electric railways since October, 1923, a period of some nineteen months. Using the figures of your president, Mr. Shannahan, the number of buses used by electric railways increased 229 per cent. The number of railways using buses increased 70 per cent and the miles of route increased 270 per cent.

"During 1924 alone the number of buses operated by electric railways more than doubled, while the number of companies engaged in bus operation is nearly one-third larger than a year ago. Particular significance attaches to the fact that the increase in the number of buses has been proportionately much greater than the increase in the number of railways operating buses. In other words, the primary reason for this great development during the year is that railways have found that buses fit into their transportation problems and have continued to add to the number they are operating.

Buses Are Here to Stay

"There are some conclusions as to the use of the bus which can admittedly be accepted, at least for the present, as major premises.

"First, buses are no longer considered as a passing phase of public fancy. They are here to stay.

"Second, buses cannot supplant electric railways in handling peak loads in congested districts in large cities. The use of the bus by electric railways, is, therefore, a question of determining the proper place for each service.

"I do not believe anybody can definitely say where motor buses should be used. Their use is daily extending into new fields. The public is demanding new uses of this facility and to what extended use it may be put within the next few decades taxes the imagination. The American people are inveterate travellers.

"We, as bus manufacturers, have every desire to cooperate with you in another respect. You are our customers. We desire to sell you buses. Having sold you equipment we will not indirectly enter into competition with you by financing competitors' equipment. We do not believe it good business ethics to finance companies operating in competition with our customers, either through stock ownership or by time sales that are a mere subterfuge.

"In a competitive business where time sales are common and expected we, of course, are compelled to sell equipment on deferred payment plans. We have adopted a plan limiting both the minimum cash required and the maximum of time granted and we will live up to that plan."

In closing his remarks, Mr. Dahl advocated the organization of a "National Bus Association," representing all groups interested in bus operation and centralizing legislative and other activities which may naturally be expected to develop as this form of transportation grows.

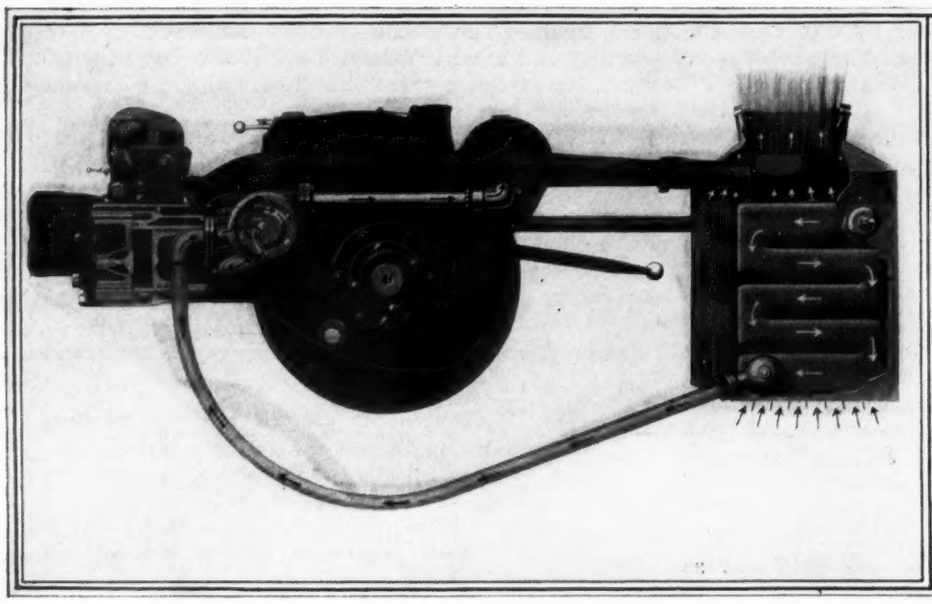
"To accomplish this purpose the National Automobile Chamber of Commerce again offers you its whole-hearted cooperation," he said. "You are large customers of ours. We are directly affected by policies which you adopt regulating your business. We would appreciate the opportunity of being of assistance to you in solving your motor bus problems."

IN 19 months the electric railways of the country increased their motor bus equipment 229 per cent.

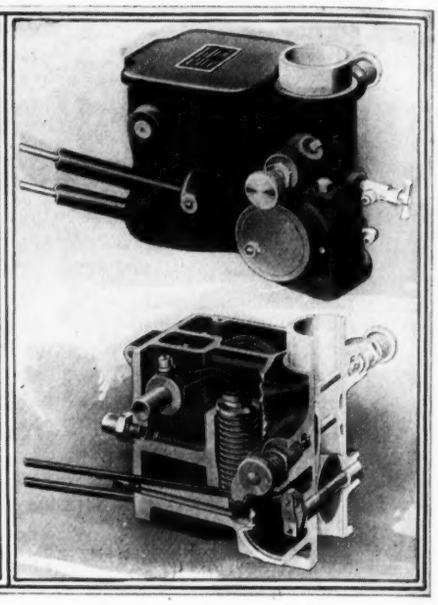
The miles of route covered by railway-owned buses increased during this same period 270 per cent.

The number of railways using buses increased 70 per cent.

ADDRESSING a recent joint meeting of the Institution of the Rubber Industry and the Society of Chemical Industry, Dr. A. van Rossem, Director of the Government Rubber Laboratories of Delft, Holland, said that during 1922 there was a large increase in the amount of rubber imported into Europe in latex form, the 1,500,000 gal. of latex imported that year represented 1 per cent of the total rubber imports from the Malay and Sumatra districts. At Delft the latex was concentrated by evaporation and by centrifugal processes which yielded latex cream and skimmed latex. Latex can be vulcanized, the best sulphur carriers being colloidal sulphur and ammonia sulphide, and it has been used especially as a substitute for rubber solutions, the solvents of which can be recovered only by costly and dangerous processes. The water-proofing by latex of paper, leather, threads and tubes, balls, tarpaulin and cement bags are promising applications, and high pressure steam packing of latex has given good results. The concentration of latex is expected to prove advantageous, because three tons of latex contain two tons of water.



Side view and section of carbureter of Oilpull tractor



Arrangement of cooling system

Oilpull Tractors Redesigned; Weight Reduced and Working Parts Enclosed

General principles of old line retained, but such features as knuckle steering, case-hardened and ground wearing parts, removable cylinder sleeves and complete enclosure of the transmission have been adopted.

THE Oilpull line of tractors, manufactured by the Advance-Rumely Thresher Co., Inc., of Laporte, Ind., has been completely redesigned. The general principles of operation have not been changed, but the design has been thoroughly "cleaned up" and the weight materially reduced, besides which all working parts are now completely enclosed.

The line comprises three models, rated, respectively, at 15-25, 20-35 and 30-60 hp. All three have twin cylinder horizontal engines with removable cylinder sleeves. The drive to the live rear axle is through enclosed spur gears at the center of the axle.

A characteristic feature of the Oilpull tractor always has been the square section cooler mounted at the front. This is of the same width as the frame and about the same depth in the fore and aft direction. It is surmounted by a sort of roof with a central stack. This stack is now considerably lower than it was on the former models.

Instead of water, crude oil is used as the cooling medium in the Oilpull tractor. This is claimed to possess considerable advantage, for not only does the oil not freeze in the coldest of winter weather, but its boiling point is much higher than that of water, and the jacket can be kept at a considerably higher temperature, which helps in the vaporization of the kerosene which is used as fuel in this engine. The exhaust from the engine is discharged into the stack of the cooler, and induces a draft of cool air through it, which dispenses with the need for a fan. The draft thus induced is in direct proportion to the load on the engine, which tends to maintain the cylinder walls at a more uniform temperature. When idling the oil will heat up to about 190 deg. F., which is said to be sufficient for vaporizing the kerosene.

Another feature of the Oilpull power plant is the improved Secor-Higgins carburetor. This is so designed that it feeds to the engine a mixture of kerosene and air at low suctions, adds a little water at intermediate loads and feeds as much water as kerosene at full load. The water exerts a cooling effect on the charge during the compression stroke and prevents pre-ignition.

Simple Water Feed Control

Control of the water feed is accomplished in a very simple manner. The fuel is maintained in the carbureter at a constant level, substantially even with the top of the spray nozzle. The water, on the other hand, is maintained at a level about ½ in. below the top of the water spray nozzle. Consequently, fuel will begin to flow from the nozzle with a minimum suction on the nozzle, while the suction must attain considerable strength before the water is raised to the top of the nozzle and enters the charge. At higher loads the rate of water feed increases more rapidly than the rate of fuel feed.

The carbureter consists of a gray iron casting having the mixing chamber at one end and constant level chambers for the fuel and water at the center. Two plunger pumps located in the fuel chambers draw the water and fuel from the tanks. A hinged cover with a felt-packed

bottom gives access to the inside but seals the containers during operation. Adjustment of fuel and water feed is made by means of needle valves located on the outside of the carbureter.

Engine Design Improved

The engine is of the same general type as heretofore used on Oilpull tractors, but numerous improvements have been made in its design. It is a two-cylinder horizontal four-cycle engine with valves in the head. The cylinder sleeves on the new engines are removable, and this operation is said to be facilitated by the use of oil cooling, which prevents the sleeves from rusting in place. The piston pins float in the pistons and connecting rods. Drifting and consequent scoring of the cylinder bore is prevented by the insertion of soft metal pads in the bores of the piston bosses.

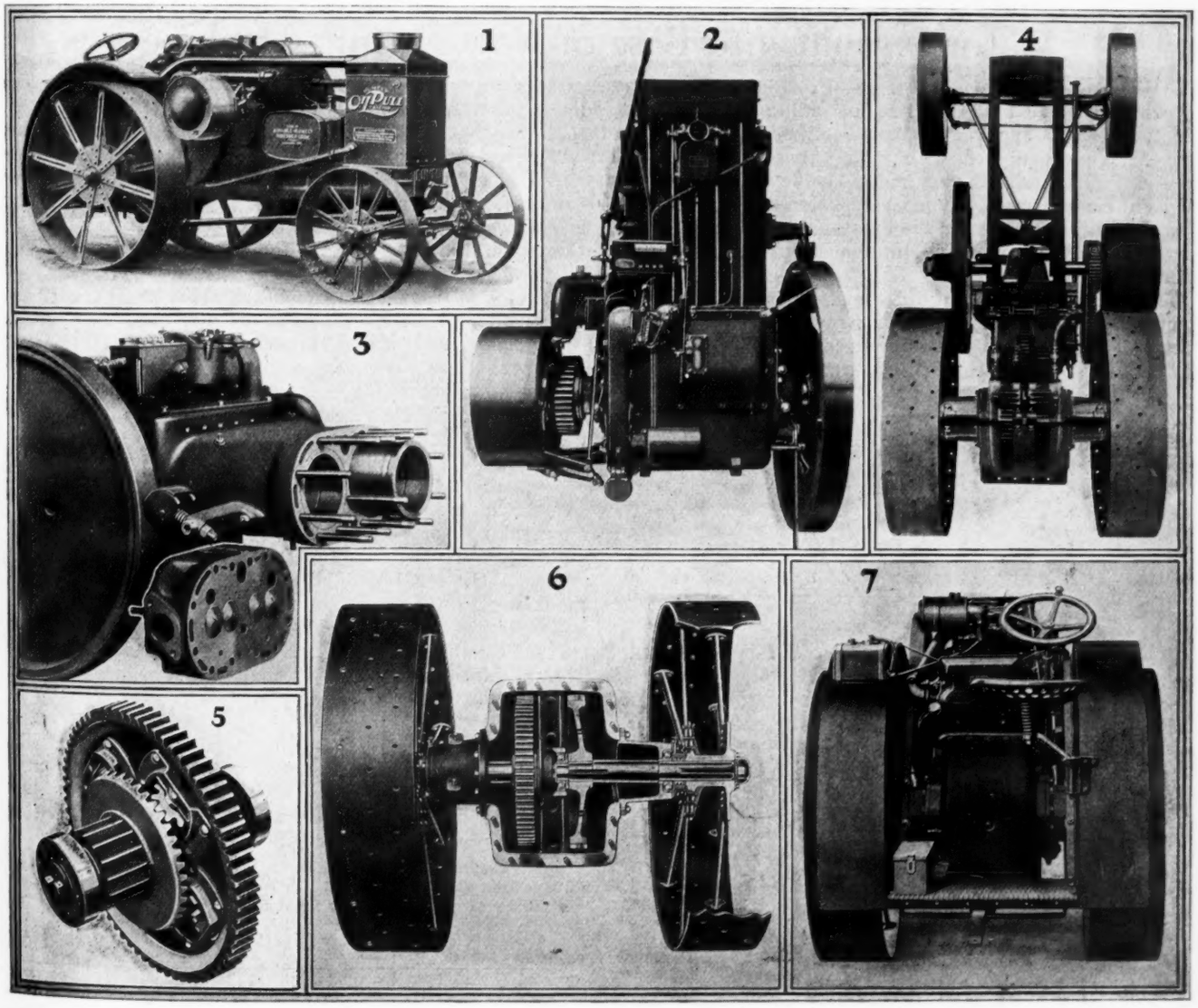
Many of the working parts, including the camshaft gears, cams and piston pins, are case-hardened. The pistons are ground to size and are fitted with four rings at the top end and one oil wiper ring below the piston pin. Chrome vanadium bolts are used in holding the connecting rod heads in place. Fresh oil from the force feed oiler is continually supplied to the crank bearings through collector rings secured to the crankshaft. The crankshaft journals are ground and are supported in die-cast babbitt bearings. Oil from the lubricator is led to the two crankpin bearings through oil rings.

The valves have cast iron heads electrically welded to steel stems. The ends of the stems are case-hardened to minimize wear. Operation of the valves is through pushrods and rock levers.

The governor is mounted in ball bearings and runs in an oil bath. It can be adjusted from the outside for changes in governed speed. An oil filter type of air cleaner is fitted. A high tension magneto with impulse coupling is used for ignition. Spark plugs of extra heavy design are used, to enable them to withstand the heavy vibration, but the thread is the standard ⅞ in.-18, and regular automobile type plugs may be used in case of emergency.

Splash Lubricating System

Double lubrication of engine parts is provided for. A mechanical oiler is fitted, as already mentioned, and, besides an oil level is maintained in the crankcase, and



1—New model Rumely Oilpull tractor of 15-25 hp. rating. 2—Top view of Oilpull engine. 3—View of engine showing detachable head and removable sleeves. 4—Phantom top view of Oilpull model L chassis, showing transmission gears. 5—Differential gear of Oilpull tractor. 6—Master gear and rear axle assembly on Model L Oilpull. 7—Rear view of Oilpull tractor

splashers on the connecting rod caps ensure lubrication by splash of all interior parts.

All shafts of the transmission and the rear axle shafts are mounted in annular ball bearings. The bearings are packed in grease in the first place, and additional grease is supplied to them from time to time by means of a grease gun furnished with the machine. The final drive is by individual pinions and master gears to each of the two axle shafts, these gears being fully inclosed in the transmission case and running in a bath of oil. All of these gears have machine-cut, case-hardened teeth. The rear axle is made in two sections and is fitted with heavy duty ball bearings. A differential lock is provided to enable the tractor to pull itself out if one driving wheel gets onto slippery ground.

The frame of the new Oilpull is of the unit type, consisting of pressed steel side members which are bolted to the transmission case, and hot-riveted to the front frame member. The front axle, which is of the divided or knuckle steering type, is pivoted at the center to a sliding block on which the forward end of the frame is supported by a heavy coiled spring, a second coiled spring taking the rebound.

Steering is by a worm and gear type mechanism which is fully enclosed and packed in grease. Both the worm and the gear are forged integral with their respective shafts. Both parts are case-hardened, which should reduce their wear to a minimum, but should any undue amount of slack occur the gear can be turned through a quarter circle three times in succession, each time bringing entirely new teeth on the gear into action. All steering gear connections are provided with Alemite fittings.

A spring-cushion drawbar is fitted, which takes the load on heavy coiled springs, thus reducing shock and jar. It is adjustable sideways to five different positions, and also is free to swing sideways.

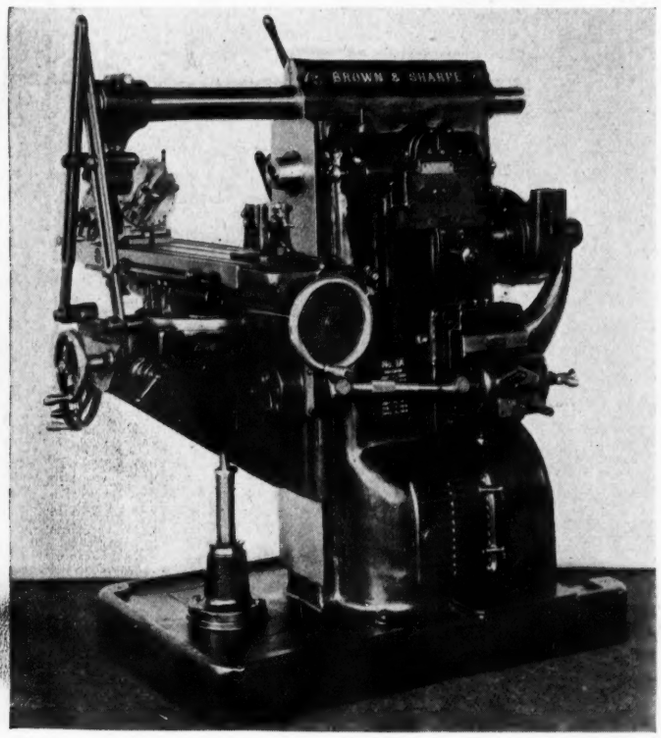
To provide for the comfort of the driver the new tractors are fitted with roomy platforms, heavy rear fenders and a swivel mounted spring seat. The platform is close to the ground and provides ample space for the operator to move around on while the tractor is in motion.

When it is desired to use the tractor for belt work the frame can be shifted to one side relative to the front axle, so there will be plenty of clearance between the belt and the front wheel.

Motor Is Built into Base of New Milling Machine

THE Brown & Sharpe Mfg. Co., Providence, R. I., has recently added to its line of milling machines a "motor-in-base" type adaptable to either belt or motor drive. When equipped with motor these machines are entirely self-contained, the motor being inclosed in an oil-tight compartment. Compactness and economy of floor space required are among the outstanding features of the machines, which are made in two styles of three sizes each.

The new design does not differ materially from the well-known column-and-knee type of Brown & Sharpe manufacture, except in respect to the construction necessary for this style of drive. The column and base are a one-piece casting with thick walls, internally braced. The lower part of the column, of course, had to be redesigned to provide a motor compartment, and the latter is cast with a solid top. Complete protection is furnished the motor from oil, cutting lubricant, chips, dirt, etc. A tank for cutting lubricant is located in the base, extending around the foot of the elevating screw. Strainers set in the top of the base provide for the prompt return of all oil to the reservoir.



Brown & Sharpe "motor-in-base" type of milling machine

Three ventilators located on the sides and rear of the compartment insure circulation of air, and, incidentally, they give ready access to the motor for lubrication, repairs, adjustment and cleaning. Oil wells fastened to the frame of the motor and readily accessible through the door at the right are connected by tubes to the motor bearings.

To facilitate installing and removing the motor and to provide for adjustment of the driving chain, a separate adjustable base is provided on which the motor is mounted. In order to adjust the friction driving clutch within the driving pulley or sprocket, it is only necessary to remove the small plate on the side of the pulley, through the opening in the chain guard.

When used as a belt-driven machine the motor compartment is available for the storage of tools and parts. The machines can be quickly changed from belt to motor drive.

THE following table, recently used in connection with an article by Percy Owen, was incorrectly printed. The correct table is given here. It shows the total amount of favorable or unfavorable automobile trade balance in the chief producing countries:

Balance of Trade in Cars, Trucks and Chassis

(Favorable (+) or unfavorable (−) difference between exports and imports)

Country[1]	1923 (twelve months)	1924 (first six months)	Country[1]	1923 (twelve months)	1924 (first six months)
United States	+151,041	+94,549	United Kingdom	−24,352	−13,167
Canada	+9,112	+26,083	Belgium	−4,931	+4,211
France	+22,439	+17,465	Netherlands	−9,968	−7,499
Italy	+11,867	+7,591	Austria	+1,374	+712

[1]Figures for Germany included with "Vehicles" in general, and hence not comparable.

Smaller Engine for Overlands in England

13.9 *hp. four-cylinder, three-speed power unit adopted. Change made to get advantage of lower tax and insurance.*

By M. W. Bourdon

IN order to better meet the requirements of the majority of British buyers, the Overland "de luxe" cars to be sold in England are to be available with a 13.9 hp. British-made engine as an alternative to the 3⅜ x 4 in. American type hitherto utilized. The latter labors under a certain disadvantage in the English market because of the high tax on it, viz., £19 per annum. The new model, with a bore and stroke of 75 x 102 mm. (approximately 3 x 4 in), will be better situated, with a £14 tax and a lower insurance premium, while in power output at the higher speeds it is conceivably (though not officially stated to be) at least equal to the American model.

The announcement of this move, made by Sir William Letts on behalf of Willys Overland Crossley, Ltd., whose plant is at Stockport, near Manchester, embodies a statement to the effect that the 13.9 hp. powerplant is being produced by one of the best known makers in England, and the detail description indicates that the maker in question is Morris, and that the engine, clutch and gearset are those of the Morris-Oxford car—the larger of the two Morris models.

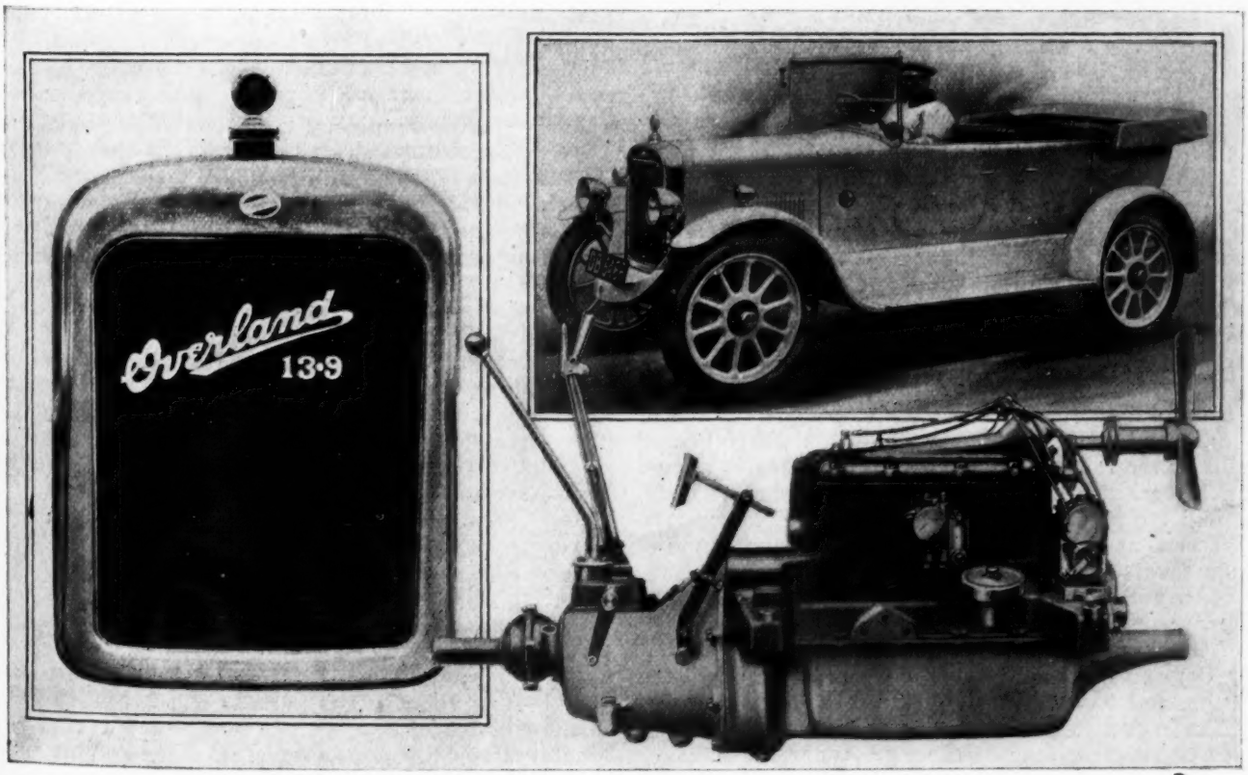
For a while only the Overland de luxe five-passenger open car will be supplied with the new powerplant, but a two-seater and a sedan are in course of preparation. The five-passenger will sell at the same price as the corresponding model of the American engined Overland de luxe, £270, with a British-built four-door body and an equipment which includes a speedometer, clock, rear driving mirror, motometer, luggage grid, rear screen, kick pads, spare wheel and tire, balloon tires being standard. A choice of four colors is offered, maroon, mole, blue and gray, with upholstery to harmonize.

The following are among the features of the engine and gearset beyond those already mentioned: The piston displacement is 110, as compared with 143 cu. in. Cylinders and the top half of the crankcase are cast in one piece. The slightly offset crankshaft has three bearings, while both pistons and connecting rods are of an aluminum alloy. The carbureter is a Zenith and the magneto a Bosch, the latter driven by a cross-shaft with timing control from the steering wheel. Helical timing gears and thermo-siphon water circulation with a cellular type radiator are used. Engine lubrication is by splash and pressure.

A combined generator and starting motor is located at the side of the gearset, with silent chain transmission.

A speed of well over 50 m.p.h. is claimed on top gear and 35 m.p.h. on second gear.

The standard Overland cars, of which the five-passenger sells in England at £165, have the American engine and gearset as hitherto, and the chassis will in all respects be unchanged.



Radiator of Overland de luxe car with British powerplant, indicating the lower tax rating

The Overland de luxe touring car as sold in England Below—British powerplant for Overland de luxe car

German Automotive Industry Faces Fight for Existence

Lack of capital and limited market prevent lowering of production costs to competitive level. Stunned by American prices. High tariff protection proposed as one remedy.

By H. Dechamps

NEVER has there been such interest in American competition in any country as there is at present in Germany. When, after an interruption of four years, the German automobile industry began its reconstruction, all communications with America had ceased. American technical periodicals were rarities and there were no personal impressions of travelers to draw upon, hence even the leading designers had absolutely no idea of what progress had been made by America in the meantime.

There was astonishment when, after the sale of the American Army surplus stocks, collected at Coblentz, individual cars could be inspected and driven. Astonishment was turned into amazement when repair work on these cars brought out the high degree of interchangeability of the individual parts and permitted conclusions regarding the advanced methods of quantity production. Amazement turned into consternation when through "the hole in the West" there were brought in new American cars which sold at a fraction of the German manufacturing costs.

TO read this story of the problems faced by the German automotive industry is to gain a better appreciation of the favorable conditions under which the American manufacturer operates.

As Mr. Dechamps points out, the German manufacturer hasn't the capital to modernize his production methods. If he could increase production he would have no market for his cars. And anyhow, what would increased production avail him when the raw material alone costs him more than the price of an American car laid down complete at Hamburg?

This is an extremely interesting discussion of the German situation and shows how utterly superior in every respect American automotive production facilities are to any which the Germans may hope to develop for many years to come.

American Methods Analyzed

The immediate result was a zealous study of American industrial methods. For a while this was rendered difficult by the fact that the subscription price of a good American technical journal was equal to a month's earnings, and trips outside the country became impossible. But as soon as the mark was stabilized a large number of industrialists made the trip across the ocean for information purposes. For lectures and periodicals there is no more timely subject at the present than a comparison of German and American industrial methods, so that every German designer is now well informed as to the designing and manufacturing methods in vogue in America. The result is a crushing blow to him.

Not that the American designer or production manager surpasses his German colleague in knowledge or ability. If the latter were given the same problem and the same means he would create rational quantity production equipment which could bear comparison with that at the Ford plant, in which connection it may be mentioned that today German quality cars are unsurpassed as regards specific output, fuel economy and durability. But the lack of a sufficient market and of sufficient capital will make it impossible for him to get into a position where he can show his abilities.

Every practical production man who urges his commercial manager to purchase a larger tool that will increase production and proves that it will earn its cost in a short time, has to expect the reply that that is all very well, but that lack of capital makes the purchase impossible. It is obvious that under these conditions the installation of advanced quantity production equipment on the American basis is hopeless. And even if means were available for the tools, where should the capital necessary for the raw material for even a few thousand cars come from?

Laymen insist (until one becomes tired of hearing it) that salvation lies in production in such large quantities that cars can be sold at Ford prices, that because of the much lower German wages it would not be necessary to invest such tremendous sums in equipment, and that if this were done, sales would take care of themselves. This unwarranted optimism reveals a lack of familiarity with German economic conditions.

It is shown by statistics that there are in Germany hardly more than 100,000 persons whose monthly incomes exceed 2000 marks. And even if, as a result of a very material price reduction, the number of 30,000 cars at present running in Germany should be multiplied several times, the annual demand would still be insufficient by far to warrant attempts at production on an American scale. How difficult it is to make sales is best known to dealers in bicycles and motorcycles, and the sale of a single automobile necessitates an incomparably greater expenditure of time and money.

This comparatively small production is divided between a very considerable number of firms. Most of

them make several types in order to get sufficient business, so that the resulting lots for each firm are ridiculously small when viewed from the American point of view, and only comparatively simple manufacturing equipment can be considered.

Accessories Also Suffer

The accessories manufacturing industry suffers equally from inordinate division. For reasons which will be outlined later on, it has been impossible so far to create a specialized industry for the manufacture of engines, transmissions, clutches, steering gears, etc., and the branches considered include only those producing radiators, carbureters, frames and ignition equipment. If an exception is made of the latter, the orders given for identical parts are so small that the costs naturally come much higher than in America, where many tools are working from one end of the year to the other on the same part. In addition, in this industry also, most firms, on account of lack of capital, have to calculate with a small production and comparatively high costs, instead of with the reverse. The result is that the necessary raw material costs German firms more than the price at which complete American cars are offered for at Hamburg.

How hopeless under these conditions to try to save pennies in manufacturing operations when you are thus handicapped at the beginning!

Realizing these conditions, a number of firms some time ago combined into so-called "Conzerns," each of them confining itself to one or two-car types, the different types being complementary, so that the sales expenses could be reduced by having a single sales organization. However, in comparison with the price reduction called for by competitive conditions this obvious progress is like a drop in a bucket.

Now, what possibilities are there that the German industry may escape annihilation when the borders are opened? There are apparently only two ways out, and for the present, these are only theoretically possible. One is the complete amalgamation of a large number of concerns into a single one. A central directorate endowed with dictatorial powers by a stroke of the pen would have to discard all but a single type, without regard to the abstract values of names or trade marks and the real values of special tools. The one retained would have to be the best design or assembled of the best parts. The board would also have to dispose of all administrative and engineering organizations, with one exception, and assign to each plant, according to location ad equipment, the manufacture of a single assembly, while one plant would become the assembling plant for complete cars.

Obstacles Seem Insuperable

With specialization along this line it would be possible, in spite of the limited market, to keep step with foreign competition. Unfortunately there are so many obstacles of a personal, financial and judicial character to an amalgamation of the kind outlined that only the compulsion of practically certain and immediate ruin could overcome them. Consideration must be given the great number of employees, from the general manager down to the apprentice, who would instantly lose their positions through such a move. One must think also of the problem of properly appraising the individual works and of raising the immense amount of new capital required to make such a reorganization possible.

The second possibility consists in a reorganization of the whole industry whereby some individual firms, while preserving their independence, would confine themselves to the manufacture of a single sub-assembly, while the rest would devote themselves to the assembling of complete cars from purchased parts. It is strange that this obvious plan, which was advocated in the trade press as far back as 1910, and which in the meantime has been carried to success in America, has been unsuccessful in Germany so far.

A whole lot of firms, during the last fifteen years, have attempted to create a market for clutches, steering gears and the like, but finally they all had to abandon the struggle. The cause of their failure was partly that the time was not ripe for such a development, partly that Germans consider that a high class car should be "built under one roof" and partly that no firm was compelled by market conditions to resort to the purchase of complete parts in order to meet delivery dates. Now the situation has changed and it is likely that conditions will lead to a reorganization of this nature. If they are allowed to work themselves out naturally it may require many sacrifices until a proper relationship between supply and demand has come about and the whole industry profits therefrom.

Only time can tell whether the German industry by one of these two methods or by a combination of the two will succeed in regaining its former position in the world markets in the course of a few years. In any case, what the German industry needs is a "closed season" to allow it time for reorganization, in the form of temporary tariff protection and it also needs considerable new capital. Without these two essentials the future looks extremely dark.

Handbook of Electrical Equipment Standards Is Published by A. E. A.

ONE of the objects for which the Automotive Electric Association was formed was to standardize electrical equipment for automotive applications. In order to bring the standards of the Association prominently before the designing engineers and purchasing agents of the industry, the Association has now issued a loose leaf binder for A. E. A. Specifications. One copy will be sent to the chief engineer and one to the purchasing agent of each company using electrical equipment, from the headquarters of the Association at 5363 Hamilton Ave., Cleveland, Ohio.

The binder as sent out contains a resumé of the work accomplished by the Association to date, relating to patent matters, standardization, specialized service, cooperation with storage battery manufacturers and lamp manufacturers, and the general policies of the Association. A list of members is given and then follow the various standards so far adopted.

Concerning the value of the book to the automotive engineer, it is observed that "the specifications for electrical units represent the combined knowledge and experience of the electrical equipment manufacturers. They give purchasers a very definite idea of what they are going to get in the way of electrical performance. They provide the car manufacturer a dependable basis for the proper selection and application of electrical apparatus for a given car. They assure the car manufacturer that certain electrical units will be adequate for the demands that will be placed upon them."

The standards so far published apply only to 6 volt passenger car equipment—generators, motors and batteries—and the recommendations on installation and wiring. Specifications on ignition will appear in the near future, and these will be followed in due time by specifications on equipment for trucks and buses.

Here and There in Foreign Markets

By special arrangement with the Automotive Division, Bureau of Foreign and Domestic Commerce

The World in Brief

IMPROVEMENT in the automobile trade in the Philippine Islands, which occurred the latter part of 1924, was sustained throughout January and February, according to cable advices received by the Department of Commerce in a world-wide survey of business conditions.

In Porto Rico an automotive financing company has recently started operations which are expected to result in an increased demand for motor vehicles in this territory.

The automotive market in Brazil is extremely brisk and present stocks are insufficient to meet the demand, although a slowing up is expected after the carnival season is over.

Chilean sales of automobiles, trucks and tires are below the average, while those of light tractors and accessories are fair.

In Australia business is quiet, but accumulated stocks are gradually being absorbed.

The automobile sale in the Indian market during January was good, but a slowing down was noted in February, due to an agitation for lower import duties.

Imports of all lines from the United States to Hawaii increased during 1924, with automobiles, trucks and buses running well above the average.

French Imports and Exports

FRENCH exports of passenger automobiles in 1924 was 52 per cent greater than in 1923, a total of 43,094 having been shipped to foreign markets, according to information from Chester Lloyd Jones, American commercial attache at Paris. A total of 4193 commercial vehicles were exported, an increase of 57 per cent over 1923. Against these figures there were imports of 14,249 passenger cars, representing an increase of 69 per cent as compared with the previous year, and 115 commercial vehicles, or 35 per cent more than were imported in 1923.

British Compel Taxicab Insurance

UNDER a new British Home Office Order, all proprietors of taxicabs within the London areas who fail to satisfy the Commissioner of Police as to their financial position are required to take out a policy of insurance for an unlimited amount to cover third-party personal injury claims and for a minimum of £10,000 to cover third-party damages to property claims, Assistant Trade Commissioner William M. Park at London, reports to the Department of Commerce. With respect to omnibuses and charabancs, the existing practice requiring unlimited insurances to cover third-party personal injury claims and a minimum of £25,000 for third-party damage to property claims will continue to hold.

Competition Stiffens in China

TRADE competition between American and European manufacturers is steadily increasing in China. In a review of the situation made for the Department of Commerce it is shown that Germany is steadily working its way back into Chinese markets and in 1923 supplied goods valued at more than during 1914. Belgium and France likewise have shown tremendous strides in regaining the markets they lost with the outbreak of the war. America's share of China's total imports increased from 6 per cent of the total in 1913 to about 19 per cent in 1921, but by 1923 had dropped back to 16.25 per cent. In spite of our losses during the last three years it is apparent that the United States still is holding a good share of its war gains and will continue to do so, although closer attention will have to be given to the market. The American leadership in the machinery and automobile trade is being seriously endangered by European countries.

Egyptians Study American Roads

TWO engineers of the Egyptian government have been sent to this country to make a thorough study of road building and maintenance as carried on through the cooperation of the U. S. Bureau of Public Roads. Dr. Halim Abdelmalek and M. Hassaam are the delegates. Dr. James R. Mood, of the Department of Commerce, has been designated by this government to assist them in their study. The appointment of the engineers, who will spend two or three years in this country in making their study, is in line with the Egyptian government's policy of better automotive transportation for their country, announced three years ago when that government sent seven students to this country to make a five year study of automotive engineering.

American Gasoline in China

INCREASED use in China of motors cars and trucks during the past ten years has resulted in a steady and rapid growth of the gasoline trade, and total imports in 1914 of 823,000 gallons advanced in 1923 to 6,365,000 gallons, according to a report from Trade Commissioner Howard at Shanghai. It is estimated that in 1914 the United States shipped 200,000 gallons of gasoline to China, valued at about $50,000, and increased this amount to 3,500,000 gallons, valued at $800,000, in 1923.

EDITORIAL

The Industry Is Safe

INVENTIVE activity is always a fair index to the health and progress of industry. Based on this fact, the records of the United States Patent Office for 1924 should prove very encouraging to the automotive industry. During the year the number of patent applications filed on new devices pertaining to some phase of automotive equipment totaled 4621. Only in one other field of development was this number exceeded, and that was in the still newer and consequently more feverish field of radio.

Most of the applications, naturally, were taken out on accessories. But as long as such a gratifying portion of the inventive effort of the nation continues to be expended on the development of the automobile and its appurtenances the industry need feel no immediate alarm over its ability to maintain for many years to come the rapid progress that has placed it in the enviable position it occupies today.

Steam Buses

BUS service in congested urban districts constitutes an extreme test of the clutch and change gear of a motor vehicle, or of the ability of the vehicle to accelerate smoothly and rapidly. It is in services of this kind that the faults of the present standard type of automobile transmission are most apparent, and that the system has not been entirely satisfactory is shown by the interest which is being evinced in other forms of transmission in connection with city buses. It is a pretty safe assumption that if the conventional mechanical transmission is ever replaced it will occur first on this type of vehicle.

In England, where experience with motor buses dates back farthest, extensive use has been made of both steam and gasoline electric buses. The advantages of these power systems from the acceleration standpoint are very seductive, but, unfortunately, they are accompanied by disadvantages, and on the whole the gasoline bus with mechanical drive has well held its own over there. A service of steam motor buses was operated in London by the National Motor Omnibus Company for a good many years, but it appears that at last the company failed or dissolved. The power plant of these buses seemed to be of a particularly good design, and the failure of the service therefore tends to discredit the possibilities of steam, but it must not be overlooked in this connection that the failure may have been due to reasons entirely distinct from the form of motive power employed.

One handicap to which the steam system is subject when applied to private passenger vehicles and trucks—that there are comparatively few repairmen who are familiar with this system and can give efficient service—would not be a factor in the case of a large motor bus organization maintaining its own repair service.

It is understood that one or two large organizations in this country are at present looking into the possibilities of steam power in the motor bus field and that buses of this type are being built and will be tried before long. The experiment will certainly be watched with considerable interest.

Bus Life

NOW that so many buses are being operated by street railway concerns, it is quite natural that they should make comparisons between the life of the bus and that of the trolley car which they have operated year in and year out. It seems to be agreed that the life of a trolley car is in the neighborhood of 20 years, while that of a bus, even with the best of care and repair, seldom exceeds 5 or 6 years. Of course, this comparison is not to the credit of the bus designer and consequently should be receiving his earnest consideration, as, indeed, it is in many cases.

It is easy to point out differences in conditions met and service given by the two types of vehicle, but if we say that the trolley car has an advantage in that it travels always on smooth track, the rejoinder is apt to be that one of the chief claims advanced in favor of the bus is that it is not confined to tracks but can go wherever it is required.

It may be that differences in conditions to be met by the two classes of vehicles will make it impossible to design one in such a way as to be as durable as the other, but no stone should be left unturned by the automotive engineer until he is convinced that he has built as much life into the bus as the limitations involved permit.

One reason assigned by officials of the Philadelphia Rural Transit Co. for the selection of the gas-electric drive for the large number of buses which they ordered recently is that it would have a tendency to increase the life of the bus. It was recognized that the intermittent torque involved in frequent declutching and gear shifting is hard on many parts of the vehicle, not to mention driver and passengers.

Much the same reason is assigned for the persistent reports of other forms of substitute for the gearset and for the possibility of using steam engines in bus service. If these perform their intended function they may be worth while on other grounds than that of increasing the life of the vehicle. In any case they merit study, as do all other means for increasing useful life and the comfort of users which give promise of success. Bus design is by no means in its final state.

Our Industry Today—

Automotive Manufacturers Start Out on Spring Stride—Demand and Production are Increasing —Ratio of Gain Steady

NEW YORK, March 2—Just now the automotive industry is at the point of getting into its 1925 stride. Instead of starting out the year, as in 1924, with rush production, manufacturers have held output close to demand. With demand perceptibly increasing, production likewise is growing. February, although a short month, with two holidays, showed an increase in production over January. This, from all signs, will continue at an increased ratio, with probably record figures for May, June and July.

In those months this year high production will be reached. The demand will have asserted itself in no uncertain manner by that time, and the manufacturers are prepared for it. They have been inclined this year to hold back in production until the situation in regard to probable purchases became entirely clear to them. They have preferred to manufacture only cars that they could keep moving, instead of stocking up dealers and warehouses.

Clouds of doubt have gradually been disappearing from the horizon. Favorable reports from the trade have come in from all sections. The prosperity that prevails is gradually, but effectively, spreading into the automobile business. Automobile shows everywhere have been successful.

Speculative circles, as is usually the case in active markets, have brought forth a crop of automobile merger rumors. These have proved to be without foundation. So far as leading manufacturers know, there are no large combines in process of formation. There may be some smaller mergers, but the successful manufacturers who have been mentioned in connection with rumors are busying themselves with factory output and distribution plans, not with endeavors to get some other companies out of business. There may be some mergers of minor importance, but more likely in the truck field than in the passenger car section.

Traffic Conditions Favorable

An instance of stabilization and cooperation in the automotive field is brought to light this month. For the first time in the history of the safety movement, traffic accidents are being lowered. The total of traffic fatalities for January in the ten largest cities of the United States was 34 per cent lower than for the first month of last year. This indicates that the traffic situation, which for a time threatened the industry, is being gotten in hand and that the way is being cleared for more automobiles.

This marked turning of the corner in the way of fatal accidents is another keynote of encouragement for the automotive industry.

February Production Is Placed at 277,600

Preliminary Figures Show a 15 Per Cent Gain Over Previous Month

NEW YORK, March 4—Preliminary figures as prepared by the National Automobile Chamber of Commerce give car and truck production for February as 277,600, an increase of 15 per cent, as compared with the revised figures of 240,912 for January. Output for February, 1924, was 367,532.

The estimated output for February of this year is above that of the same month in 1923, the peak year, when February production was 276,960.

Estimated carloads for February of this year are 38,350, against 33,817 in January; driveaways, 31,884, against 22,334 in January, and boat, 300, against 349 in January.

Detroit Pleased with Output

DETROIT, March 4—Output for February, almost entirely representing shipments for immediate retail requirements, is considered unusually good and manufacturers are looking forward to a March production well in excess of 300,000. The February shipments represent approximately 60 per cent closed cars.

Operating Schedules Increased

DETROIT, March 4—Chevrolet is increasing its manufacturing program in March to approximately 40,000 from about 1000 daily. Dodge is approximating 1000 daily, Hudson-Essex, 700, and Packard, 100.

Reo Declares Stock Dividend

DETROIT, March 4—Through the declaration by Reo Motor Car Co. of a 33 1-3 per cent stock dividend, payable April 15, to holders of record March 16, the outstanding capital stock of the company will be increased to the full capital authorization of $20,000,000. The regular quarterly cash dividend of 1½ per cent and extra of 1 per cent will be paid April 1. The books of the company will be closed from March 17 to April 14 to make possible the necessary changes and assignments of stock.

Olds Plans 75 Per Cent Closed Cars

DETROIT, March 4—Closed car schedules of Olds Motor Works for 1925 call for 75 per cent of total production, of this total 60 per cent to be coaches and 15 per cent other closed types. The open car production will be divided among the several open car models which the company lists. The closed car schedule represents on increase of 25 per cent over 1924.

O. M. Burkhardt Becomes S. A. E. Research Manager

NEW YORK, March 5—Otto M. Burkhardt, for the last 14 years consulting engineer of the Pierce-Arrow Motor Car Co., has been made research manager of the Society of Automotive Engineers. Mr. Burkhardt succeeds J. A. C. Warner, who took over the sections and meetings activities of the society when L. C. Hill resigned last month.

Mr. Burkhardt has been active in S. A. E. work for many years and on several occasions has contributed papers and discussions of scientific importance. He was prominent in the discussion of wheel shimmy at the annual meeting of the society in Detroit in January. Previous to his connection with the Pierce-Arrow company he was associated with the Russell Motor Axle Co. of Canada.

Paige in Production on New Brougham

DETROIT, March 4—The Paige Detroit Motor Car Co. is now in production on a Paige standard brougham, priced at $2,195, which is $30 more than that charged for the touring car. The body conforms to the de luxe brougham type recently added to the line, except that much of the special equipment is omitted. The car is finished in green zapon with black enamel radiator. It includes an equipment trunk, combination stop, tail light and windshield wiper.

BUDD BUYS COLUMBIA

DETROIT, March 4—The Budd Wheel Co. of Philadelphia has purchased the plant and property of the Columbia Motors Co. for $424,000. The other assets were sold at auction in October, 1924, the property offer at that time having been declined and held over for private sale by the Security Trust Co., trustee in bankruptcy. The land area in the purchase is 23 acres and inclosed floor space including 30,000 ft.

Ford Incorporates Company in Japan

Will Establish at Yokohama First Assembly Plant in the Orient

DETROIT, March 4—Edsel B. Ford, president of the Ford Motor Co., has announced that a new company, known as the Ford Motor Co. of Japan, Ltd., has been incorporated in Japan, and that an assembly plant, the first to be opened in the Orient, will be established in Yokohama.

In making the announcement, Mr. Ford gave expression to an optimistic outlook for foreign trade. He said:

Improving economic conditions abroad have made a large expansion program imperative and the formation of our new company in Japan is simply a part of the general plan.

Details affecting the new Japanese organization have been practically completed, and it is expected to begin functioning about April 1, Mr. Ford said. Formation of a dealer's organization to handle all the Oriental trade under the company at Yokohama also is under way.

The assembly plant will be located at the Yokohama dock yards, affording excellent facilities for transferring manufactured automobile parts from ships to the plant. Machinery for the new plant will be installed as rapidly as possible.

Manufactured automobile parts for assembly in the Yokohama plant will be shipped from the company's plant at Kearny, N. J.

Ford Gets Chester Site

PHILADELPHIA, March 4 — Announcement has been made here that the Ford Motor Co. will take over the Merchant Shipbuilding Co. yard at Chester, Pa., and build on the site a large assembling plant. The Harriman interests held in abeyance papers to be signed following consideration of enabling ordinances.

The new Ford plant is to cost $1,000,000. It will be one of the main distributing centers for Ford cars and for European and South American exports. The tract consists of 50 acres. Ordinances affecting it passed Tuesday on first reading.

Canadian Ford Reroutes Ships

FORD CITY, ONT., March 4—All shipments from Ford Motor Co. of Canada, Ltd., henceforth will be shipped through Canadian ports and must be handled by all-Canadian lines, according to instructions from W. R. Campbell, vice-president and general manager. This will divert a tonnage of approximately 72,000 which formerly passed through the United States to New London, Conn., where Canadian Merchant Marine vessels picked it up. These shipments will be sent over Canadian rails to Halifax or Vancouver with no stops in United States.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES *by the Guaranty Trust Co., second largest bank in America.*

NEW YORK, March 4—The most important development in financial markets last week was the advance on Thursday in the discount rate of the Federal Reserve Bank of New York from 3 to 3½ per cent. The lower rate had prevailed since Aug. 8, 1924. No general change was apparent in business trends, except possibly a slight tendency toward curtailment in certain industries which had attained high rates of activity.

A slight decline, easily attributable to the holiday, is reported in car loadings for the week ended Feb. 14, which numbered 902,877, as against 928,244 in the preceding week and 935,589 in the corresponding period last year.

Production of crude petroleum in the week ended Feb. 21 averaged 1,947,600 barrels a day, comparing with 1,935,100 in the preceding week and 1,888,400 a year ago. The output of gasoline in 1924 reached 8,959,680,000 gallons, or a daily average of 24,480,000, the highest figure ever recorded, exceeding by 18 per cent the average in 1923. Domestic consumption also set a new record with a total of 7,780,625,000 gallons. Exports amounted to 1,219,474,000 gallons and imports were 145,023,000 gallons.

The purpose of the change is to increase the earnings of Canadian railroads and to increase employment.

Japanese Announce New Car at $800

NEW YORK, March 4—Quantity production on the Otomo, a three-passenger Japanese car to sell for $800, were among the plans outlined here today by Mr. H. Ikenaga, chief engineer for the Hakuyo-Sha Iron Works, Tokyo.

There are at the present time 30 cars of this type in use in Tokyo, and it is the intention of the organization to produce at least 1000 a year. Mr. Ikenaga has come to this country to make a study of the production methods used by American manufacturers. Referring to the present market, he said:

The $800 price will enable us to undersell the cheapest American imported car, which retails in Japan for about $1,000. Another point is that the yearly tax on the Otomo will be only about $32, while owners of the cheapest American cars are required to pay $150.

Specifications provide for a four-cylinder air-cooled engine, 2¾ in. bore by 5 in. stroke, in an 80 in. wheelbase chassis. Fifty miles per hour are claimed.

Moskovics to Run Stutz at Capacity

New President Places F. P. Nehbras in Charge of Output at Indianapolis

INDIANAPOLIS, March 4—Frederick E. Moskovics, who has taken up his new duties as president of the Stutz Motor Car Co. of America, Inc., announces two important changes in personnel, at the same time stating that the Indianapolis factory is working on a capacity production program, the output at present running ten cars a day.

Mr. Moskovics has made public the news of the appointment of Frederick P. Nehbras as assistant general manager in charge of production at the Indianapolis factory and of R. A. Rawson as manager of the merchandising department of the company.

Mr. Nehbras has been connected with the automobile industry for over 20 years. He has been associated with many of the largest automobile companies in the industry in the capacity of production manager.

Mr. Rawson formerly was in charge of the merchandising department of the Franklin company and before that had wide experience as branch manager in Kansas City, Minneapolis and other large cities. He already has begun to assemble an enlarged staff of branch managers. Among those already signed up are Walter M. Bieling, for many years district manager for the Nordyke & Marmon Co. and recently assistant general manager of the Lexington, and J. Neal Robinson, formerly wholesale manager of the Ellwood Motors of Kansas City, Marmon distributor for that territory.

Statement by Mr. Moskovics

In connection with the announcement of the additions to the Stutz organization Mr. Moskovics said:

The appointment of Mr. Nehbras as assistant general manager of the Stutz organization is another step in our plan to get this organization producing in its full capacity without in any way lowering the high standard of Stutz manufacture. The proposition of rapidly increasing sales on Stutz cars makes necessary every attention to production details. We feel that in Mr. Nehbras we have obtained a production executive unequalled in the industry. Our present production program of ten cars a day will be in full charge of Mr. Nehbras and I know that every Stutz owner will be benefited by his direction.

WILLYS-OVERLAND FIRE

TOLEDO, March 4—Fire swept through three departments of the Willys-Overland plant here last Friday morning and disrupted the working schedules in the grinding heat treatment and pickle departments for a few days, although doing only small property damage. Frozen lines hindered the firemen.

Reports Automotive Employment Gaining

U. S. Survey Says Conditions in Industry Are Decidedly on Up Grade

WASHINGTON, March 4—With the automotive industry increasing production, the employment situation is decidedly on the upgrade in this field, according to a survey of the reports on employment contained in the February issue of the industrial employment bulletin of the United States Employment Service. While there are still cases where a surplus of workers exists, the reports show that they are by far in the minority.

Speaking generally of the situation in Michigan, the bulletin points out that several automobile plants are recalling furloughed workers, due to the increased production in the automobile industry. The only distressing report in this State is from Highland Park in the Detroit industrial district, where automobile plants are reported working only part time. This affects about 50,000 workers.

Following are concise reports from principal automotive centers:

Flint, Mich. — Several automobile plants are recalling furloughed workers.

Lansing, Mich.—Automobile and automobile accessary plants are operating part time with a surplus of automobile factory workers and common labor apparent.

Muskegon, Mich. — Automobile accessory plants will soon be operating on normal schedules.

Jackson, Mich.—Automobile accessory plants are operating only part time, affecting 800 workers.

Massachusetts generally—Automobile tire plants are working overtime.

Springfield, Mass. — Automobile tire plants are working overtime.

Norwalk, Conn.—Overtime prevails in the tire industries.

New York generally—A slight improvement is noted in the automobile and accessory plants, and further expansion is expected within the next month.

Buffalo, N. Y.—Automobile industries remain quiet, although expansion in these industries is expected within two weeks.

Rochester, N. Y.—Automobile accessory plants are still on part-time operations.

Syracuse, N. Y.—Automobile plants have recalled approximately 600 workers, gear plants increasing their forces approximately 15 per cent.

Elmira, N. Y. — Automobile plants show signs of improvement.

Troy, N. Y.—Automobile plants at Green Island have started a third shift, with a full force of 1200 workmen.

Camden, N. J.—An automobile industry is starting operations in its new plants, which will afford employment to approximately 300 workers.

Indiana generally—A slight increase in employment was reported in the automobile industry.

Elkhart, Ind.—The outlook in the automobile industry is described as satisfactory.

Muncie, Ind.—Au automobile plant has closed down affecting about 300 men, and a surplus of labor exists.

Ohio generally—There is still a surplus of labor apparent in the automobile industry.

Cincinnati—An automobile-lamp manufacturing company has released about 100 workers.

Columbus, Ohio — Automobile accessory plants are operating with nearly normal forces.

Toledo—A surplus of workers is reported in the automobile industries.

Akron—Many of the local rubber companies are making additions and installing extra equipment in their plants, and this month one of the largest concerns engaged 500 additional men in one of its departments.

Master Truck Merged with Petroleum Motors

ROCKFORD, ILL., March 4—The Master Motor Truck Manufacturing Co. of Chicago has been merged with the Petroleum Motors Corp. of this city, and the truck company equipment is being located in the petroleum motors' factory to continue operation. The Master motor truck is under contract to use 500 of the locally manufactured motors this year. The combination of the two units has revived activities at the Petroleum Motors plant after a four months' shutdown, and opens up the well organized sales force of the Master Motors to distribute trucks and motors built here.

The Master Motor has been producing 20 trucks a day, placing them through its sales department and operating an extensive parts department.

The Petroleum Motors is reported to be completing a new 60 hp. stationary engine, which will operate with the cheapest fuel oil at a cost less than the normal steam or gasoline engine.

Allen Heads New du Pont Division

WILMINGTON, DEL., March 4—William P. Allen has been appointed manager of the new paint, lacquer and chemicals department of the du Pont company, formerly known as paint department and the cellulose department. William Richter will be assistant manager.

The personnel of the new organization will be as follows: E. C. Thompson, manager of the acids and heavy chemicals division; J. W. Elms, manager of the paint division, and J. J. Moosman, manager of the chemical products division. Hunter Grubb, who was head of the paint department, has been assigned to special duties.

Automotive Exports Increase in January

Those from U. S. and Canada Exceed by $1,250,000 Monthly 1924 Average

WASHINGTON, March 4—Automotive exports from the United States and Canada during the first month of 1925 exceeded by more than $1,250,000 the monthly average during 1924, the automotive division of the Department of Commerce announces. January shipments were valued at $22,322,911, as compared with a monthly average for 1924 of $21,033,520.

These figures show the steady growth of exports of all automotive products. Even more striking, however, is the increase in shipments of cars and trucks, for the ratio of exports to production of these vehicles was 9.4 per cent in January, as compared with 6.5 per cent for the entire year of 1924.

In detail, January, 1925, exports show 14,492 cars and 2,982 trucks for the United States, as compared with 12,615 cars and 2,844 trucks for January, 1924. In January, 1925, Canada exported 3,732 cars and 1,442 trucks, as compared with 4,094 cars and 1,775 trucks in January, 1924.

Changes made in export classifications are reflected for the first time in the January statistics.

The importance of separating the previous class "passenger car" except electric, valued at $800 to $2,000 into two parts, is demonstrated by the size of the newly separated classes.

Similarly, the dropping of the previous class "commercial cars" and the substitution therefor of a division of the one-ton truck class, should prove of great usefulness. The first figures show that the one-ton truck shipments are made up almost entirely of vehicles with a wholesale value not exceeding $800.

Parts of motor vehicles are separated into three sections: Parts for assembly, parts for replacement and accessories. The classification "automobile unit assemblies" in use during 1924 is abandoned.

In addition to these changes, electric and passenger cars are combined in a single class, as are also "airplanes, seaplanes and other aircraft."

WARR ELECTED SECRETARY

MOLINE, ILL., March 3—Wilbur E. Warr has been elected secretary of the Moline Tool Co., this place, the new office having been created at the stockholders' annual meeting. E. C. Hunt, reelected treasurer, formerly held both offices. Wilson P. Hunt was reelected president of the company. Franklin Johnson is vice-president. Directors are C. R. Rosborough, A. E. Lindberg and S. E. Brandenburg. Mr. Lindberg is chief engineer and Mr. Brandenburg superintendent of the plant.

Denver Show Starts Buying by Farmers

Rival Exhibits Also Report Increased Sales—Expensive Cars Bought

DENVER, March 4—By demands for greater allotments for the coming season 1200 dealers attending the Denver Automobile Dealers Association show and the Denver Automobile Merchants Association private exhibits have proved beyond a doubt that 1925 will be the best year in the history of the business here. Expensive models have supplanted light vehicles in many instances, as money has become more plentiful, especially among farmers.

From the opening night until the end large crowds visited the big civic auditorium, and expressions of approval were heard on all sides as the latest models were viewed. Sales during the show exceeded those of last year slightly, but prospects for future business in the city appear much brighter than ever.

A visit to the various showrooms of those in the rival association disclosed much the same trend.

Olympia Show Dates Advanced Three Weeks

LONDON, Feb. 24 (*by mail*)—Following representations to the Society of Motor Manufacturers and Traders, organizer of the annual passenger car and truck shows in London, that an adjustment of the 1925 show dates was desirable, it was announced that the Olympia passenger car show could be held from Oct. 8 to 17 and the truck show from Oct. 29 to Nov. 7.

Originally the car show was put down for Oct. 30 to Nov. 7, and the truck show from Sept. 17 to 26, which meant that the former reverted to its usual period prior to 1924, when it was put forward to Oct. 16-25.

Packard Cars Supplied with New Equipment

NEW YORK, March 5—Both six and eight-cylinder Packard cars now being received by dealers are equipped with the Bijur chassis lubricating system and the Skinner oil rectifier.

This new equipment, together with 33 x 5.77 in. balloon tires, disk wheels, spare wheel and tire cover, gasoline gage on dash, front and rear bumpers, automatic windshield wiper, rear view mirror, electric cigar lighter, motometer, combination stop and tail light, snubbers all around, and tire lock, is included in the list prices, which remain as announced at the New York show.

The front spring layout also has been changed, the shackle now being located at the front and the anchor at the rear.

This departure from conventional practice doubtless has been made to eliminate the geometrical errors which develop in the steering system with the usual spring layout and which tend to induce shimmy.

Exports, Imports and Reimports of the Automotive Industry for January of 1925 and Total for Seven Months Ending January 31, 1925

EXPORTS

	Month of January				Seven Months Ending January 1925			
	1924		1925		1924		1925	
	Number	Value	Number	Value	Number	Value	Number	Value
Automobiles, including chassis	15,487	$10,984,589	17,497	$13,152,100	90,952	$65,326,559	101,437	$77,677,823
Electric trucks and passenger cars	28	27,006	23	25,187	120	155,536	95	120,382
Motor trucks and buses except electric:								
Up to 1 ton	2,266	981,522	.....	.....	12,653	5,147,359	9,403	3,847,905
Over 1 and up to 2½ tons	419	525,113	532	643,924	2,642	3,357,916	9,139	4,233,815
Over 2½ tons	159	343,598	115	362,544	828	2,127,217	886	2,286,947
Total motor trucks and buses except electric	2,844	1,850,233	2,982	1,886,234	16,123	10,632,492	15,763	11,248,433
PASSENGER CARS								
Passenger cars, except electric:								
Value up to $500 inclusive	4,734	1,787,874	5,456	2,033,960	29,224	10,573,218	33,651	12,309,672
Value up to $800	3,831	2,554,373	3,731	2,578,921	18,760	12,373,515	22,070	15,556,374
Value over $800 and up to $2,000	3,768	3,981,281	.....	.....	25,059	26,891,002	22,761	26,749,809
Value over $2,000	282	783,820	221	607,258	1,666	4,700,796	2,013	5,672,613
Total passenger cars, except electric	12,615	9,107,348	14,492	11,240,679	74,709	54,538,531	85,579	66,309,008
PARTS, ETC.								
Parts, except engines and tires: (Lbs.)	19,381,824	3,513,387	14,708,067	2,457,077	153,158,868	32,913,174	103,234,168	18,300,322
Automobile unit assemblies (Lbs.)								
Accessories and parts (Lbs.)	1,611,479	625,566	1,373,498	583,778	1,611,479	625,566	8,921,536	3,745,414
Automobile service appliances (not elsewhere specified) (Lbs.)	357,540	169,533	474,189	202,834	1,858,799	902,910	4,611,087	1,950,918
Station and warehouse motor trucks	8	8,011	10	4,223	144	87,703	92	47,632
Trailers	47	14,277	48	24,889	322	101,545	395	132,530
Airplanes	17	164,000	1	5,000	38	244,321	18	148,661
Parts of airplanes, except engines and tires	5,911	5,736	13,370	13,792	193,261	44,444	66,532	51,941
BICYCLES, ETC.								
Bicycles and tricycles (Number)	513	11,989	516	14,592	15,442	151,455	4,271	105,688
Motorcycles (Number)	1,821	476,157	2,067	464,510	11,833	2,960,731	9,202	2,100,363
Parts, except tires (Lbs.)	315,783	164,565	326,668	180,336	1,905,097	1,013,664	1,495,798	870,266
INTERNAL COMBUSTION ENGINES								
Stationary and Portable:								
Diesel and Semi-Diesel	60	46,560	113	37,405	451	171,176	641	258,461
Other Stationary and Portable:								
Not over 10 H.P.	1,539	158,702	2,104	189,553	15,630	1,422,838	17,066	1,665,446
Over 10 H.P.	174	163,219	128	172,475	1,835	1,043,997	1,250	993,877
Automobile engines	122	10,738	7,472	562,228	470	57,832	10,750	886,068
Motor trucks and buses	1,339	178,816	4,662	508,865	14,570	2,183,702	18,430	2,340,770
Passenger cars	12	3,652	31	7,947	1,508	381,960	2,044	636,857
Tractors	16	23,700	5	4,277	76	68,231	39	60,930
Aircraft	476,711	208,818	672,225	287,745	4,429,216	1,957,092	3,985,338	1,818,426
Accessories (Lbs.)								
IMPORTS								
Automobiles and chassis (dutiable)	40	78,288	26	67,648	585	504,854	316	462,021
Other vehicles and parts for them (dutiable)	.....	96,034	.....	57,927	.....	927,069	.....	379,390
REIMPORTS								
Automobiles (free from duty)	22	24,249	26	41,419	280	444,957	388	571,346

Rules Against State Bus Interference

Supreme Court Gives Verdict That Federal Control May Not Be Evaded

WASHINGTON, D. C., March 4—Two decisions of far reaching importance in the regulation of interstate motor vehicle traffic have been handed down here by the United States Supreme Court.

In cases brought from Washington and Maryland the court denied that States may interfere with interstate commerce moving over their highways in motor vehicles.

In deciding a case brought by A. J. Buck against the director of public works of the State of Washington the court held that the State could not refuse to authorize licenses for motor buses over that section of the Pacific Highway lying within its borders.

Supplementing its opinion that unreasonable burdens must not be imposed by the States upon interstate motor vehicular traffic, the court, in deciding a case brought by George W. Bush and Sons, held that Maryland cannot decline to permit such motor vehicles to use its highways.

Declaring that "appropriate State regulations adopted primarily to promote safety upon the highways and conservation in their use not obnoxious to the commerce clause where the indirect burden imposed upon interstate commerce is not unreasonable," the court asserted that the provisions of the Washington law under attack were of a different character. The primary purpose of the Washington law was declared to be not one of regulation with a view to safety or to conservation of the highways, but the prohibition of competition.

"It determines not the manner of use, but the persons by whom the highways may be used," the court stated, adding that the Washington statute had the effect of regulating interstate commerce and therefore was an unlawful obstruction, in violation of the federal constitution.

Open to Interstate Commerce

Both cases involved State permission to operate a motor vehicle line for public hire over an interstate route. The court points out that the Maryland case did not involve, as did the Washington case, the question of the use of a national highway partly constructed with funds furnished by the federal government. It was asserted that such a difference did not affect its position that unreasonable burdens must not be imposed by States upon the right guaranteed by the constitution of unrestricted interstate commerce.

It was the intention of Congress, the court stated, that State highways shall be open to interstate commerce. It was immaterial, in the construction of the interstate commerce features presented in the two cases, the court said, whether the obstructions were imposed, as in the Washington case, by statute, or, as in the Maryland case, through discretion conferred upon a public service commission.

Both of the verdicts emphasized that in no case can a State evade the federal control over interstate commerce.

Moline Plow Dissolved by Richmond Court

RICHMOND, VA., March 4—By an order issued by the chancery court of this city the Moline Plow Co. of Moline, Ill., incorporated under the laws of Virginia, has been dissolved.

Company officials who attended the hearing declared that such assets as are applicable to the tillage implement business have been sold to a new corporation, the Moline Implement Co.

The stock of the new company, by court order, will be distributed to debenture bondholders and first preferred stockholders of the old company. Proceeds from the sale of other assets of the Moline Plow Co. not needed for the operation of the tillage implement business are also to be distributed.

Control of the Moline Implement Co., it was shown, has been obtained through arrangement with some of the distributors by employees of the old company, who will continue the operation.

Budd Companies Get Liberty Motor Plant

DETROIT, March 4—It has been announced that the Edward G. Budd Manufacturing Co. and the Budd Wheel Co., affiliated organizations, have purchased the plant of the Liberty Motor Car Co. on Charlevoi Street, consisting of 23 acres and approximately 125,000 sq. ft. of modern factory space. This expansion, it was stated, was made necessary by an increasing recognition of the soundness of the all-steel principle and a consequently added demand.

Work is to be started immediately on converting the Detroit factory to its new uses.

Wills Ste. Claire Busy Producing New Six

MARYSVILLE, MICH., March 4—Harold C. Wills, president and general manager of Wills Sainte Claire, Inc., announces that the new Wills Sainte Claire six, which was introduced at the New York show, is now in production at the factory here. Mr. Wills added:

Never in the history of our company have we had such a large number of accumulated orders on our books. We have increased the size of our working force more than 200 per cent in the last six weeks, but it will be necessary to take on more skilled mechanics if we are to reach anticipated production on the new six and the new Vogue Series 8 model.

Traffic Fatalities Show First Decline

January Total for 10 Cities 34 Per Cent Lower Than in Same Month of 1924

BALTIMORE, March 4 — Speaking before the Baltimore Safety Council, George M. Graham, chairman of the Traffic Planning and Safety Committee of the National Automobile Chamber of Commerce, stated that for the first time in the history of the safety movement traffic accidents are being lowered.

The total of 163 for January, 1925, in the ten largest cities of the United States, was 34 per cent lower than for January a year ago, when it was 248.

Speaking of this accomplishment, Mr. Graham said:

Here is proof that constant effort toward safety eventually gets results.

Here is a tribute to the widespread influence of the Conference on the Street and Highway Safety called last fall by Secretary Hoover.

That seven of our ten largest cities have registered marked reductions in their traffic toll records is the most encouraging news in highway history.

There are many signs of hope in the totals for the complete year 1924. Fatalities were held to a 5½ per cent increase over 1923, compared with the 17½ per cent growth in vehicle registrations. There might be small comfort in this alone, but for the fact that many cities showed an actual numerical decrease for the entire year.

Twenty-nine out of the 68 cities having more than 100,000 population achieved reductions in 1924.

The situation is constantly coming under better control.

These facts refute the can't-be-done man. They give warrant for the efforts of those organizations and citizens who have pioneered in this field.

The drive to eliminate accidents by abolishing causes—to know the facts, provide better traffic facilities, improve safety education and ban the reckless—hereby receives new impetus.

Says Price Level Is Stable

AKRON, March 5—Automobile price levels will remain the same or increase this year, because American manufacturers have learned not to flood the market by overproduction, which forced the price of some cars to unprofitable figures last year.

This statement was made by George W. Graham of Cleveland, vice-president and general sales manager of the Chandler Motor Car Co., in a talk before Akron real estate men, automobile and radio dealers, preceding the opening of the automobile and radio exhibition here at the Central Garage.

The vast and almost untouched foreign market will require continually greater production on the part of American automobile manufacturers, in the opinion of Mr. Graham. He added that there is no danger in reaching a saturation point.

A Trio of New Leaders in the Motor Car Industry

A. R. Glancy
President,
Oakland Motor Car Co.

Fred E. Moskovics
President,
Stutz Motor Car Co. of America.

Edward Ver Linden
President,
Peerless Motor Car Co.

SINCE the beginning of 1925 *three motor car companies have been placed under new leadership. The new president and general manager of Oakland is A. R. Glancy, formerly assistant general manager of the company, whose elevation followed the appointment of his predecessor, George H. Hannum, as mechanical assistant to the president of General Motors. Fred E. Moskovics, the new president of Stutz, has been prominent in the industry for many years. He was formerly vice-president in charge of sales for Franklin and previous to that had been vice-president of Nordyke & Marmon Co. Before his Marmon connection in* 1914 *he had headed the sales work of Remy Electric. Edward Ver Linden, who now heads the Peerless organization, was manager of production for Buick in the early days. In* 1912 *he became president and general manager of the Olds Motor Works. After leaving Olds in* 1921 *he was associated with Durant and built the large Durant plant at Lansing, Mich.*

Says U. S. Can Take 25,000,000 Cars

TOLEDO, March 3—That the United States is able to absorb 25,000,000 motor cars and that nobody can guess what a saturation point may be, was the opinion expressed by Marion M. Miller, president of the Home Bank & Trust Co. of Toledo and one of the most conservative bankers of the city, in a recent address before the Toledo Association of Credit Men.

Mr. Miller added:

I am not concerned about a single year—whether or not it is to be big prosperity in 1925 or 1926—because we know there is to be better business in 1930.

We have a rapidly increasing population which is going to demand more good stuff, more good automobiles, and more good everything else than they do today. The recent war has placed on us a responsibility for what the world is going to be in the future. And with these thoughts in mind, this country, in my opinion, with its great wealth, faces the greatest business expansion the world has ever known.

Recently I had the temerity to say that this country would absorb 25,000,000 automobiles. And I don't think anybody can guess what the saturation point will be.

Our standard of living is high and it's going to remain high. It is up to business to find the way to keep it high. Business must work to maintain wages for labor and keep our living standard. The whole world will follow us in this move.

Mr. Miller said Canada would share with the United States in the great business development. He has been closely associated with the Stranahans and the Champion Spark Plug Co. here for many years.

Olds Names Armstrong Production Manager

DETROIT, MICH., March 4—W. F. Armstrong has been appointed production manager of the Olds Motor Works, succeeding Hugh C. Dunning, former vice-president, who has resigned. At the same time the appointment of J. J. Carter as tool manager was announced. He succeeds J. L. Wells, who is placed in charge of inspection work. Both men come from the Remy Electric Co., where they held similar positions. Mr. Dunning had been with Olds three years.

OPENS EXPORT OFFICE

DAYTON, OHIO, March 3—The Dayton Automotive Wheel Co. has opened an export office at 258 Broadway, New York City, under the direction of T. W. Wright, export sales manager.

Tommy Milton Wins 250 Mile Race

LOS ANGELES, CAL., March 4—Tommy Milton, in a Miller special, won the 250-mile postponed Washington's Birthday race at Culver City Sunday from a field of 18 starters by making the distance in 1 hr., 58 min. and 13 sec., an average speed of 126.88 miles per hour.

DePaola, Duesenberg, was second; McDonogh, Miller, third, and Hartz, Miller, fourth. The others to finish were Kreis, Duesenberg; Bordino, Fiat; Lewis, Miller; Johnson, Johnson special. The crowd was estimated at 50,000.

The race was free from accident, but Hartz thrilled the crowd with a sensational skid that whirled him end for end in front of the grandstand when traveling better than 125 miles an hour. The skid was caused by a piece of rubber hurled from a tire. He was in second place at the time.

The day was exceptionally warm, resulting in frequent tire changes, which reduced the average speed. Milton took the lead in the 72nd lap and was not passed again. The other starters were DePalma, Elliot, Wonderlich, Shafer, Comer, Morton, Hill, Shattue, Hearne and Duray.

Bassick Men Acquire Commerce Company

Substantial Interest Secured by Former Alemite Officers—Capital Increased

DETROIT, MICH., March 4—Acquisition of a substantial interest in the Commerce Motor Truck Co. by W. R. Bassick, E. W. Bassick and E. S. Evans of the former Bassick-Alemite Co., and their election as officers and directors of the company, was announced this week under the plans for expansion and development of the company.

The capital stock authorization has been increased from $200,000 to $500,000, and it is planned to make Commerce a leading contender in the truck and bus field.

The officers of the company as now constituted are: W. R. Bassick, president; E. H. Graham, vice-president; E. S. Evans, treasurer.

Directors are: W. E. Parker, E. W. Bassick, W. R. Bassick, E. H. Graham and E. S. Evans.

E. W. Bassick was president and W. R. Bassick and E. S. Evans vice-presidents of the former Bassick-Alemite Co., which was sold recently to the Stewart-Warner Corp. Mr. Evans also is president of the E. S. Evans Co., manufacturer of automobile loading equipment. Mr. Parker was former president of the Commerce company, and Mr. Graham a former executive.

W. R. Bassick, the new president, in a statement said that the first steps to be taken will be an increase in the manufacturing program to provide prompt deliveries on all orders and the development of improved servicing for vehicles now in use. The increase in capital will provide for a merchandising program which will result in a steady and consistent growth in business. Dealer development plans are already under way through which the company will cooperate and assist its representatives in a retail way.

The factory organization will remain intact, with C. L. Graenger as general manager. Manufacturing plans call for increased schedules on all present bus and truck models.

New Company to Use Burdick Tire Plant

NOBLESVILLE, IND., March 4—The Steinbrenner Rubber Co. has been incorporated in Indiana to take over the assets of the Burdick Tire & Rubber Co., a Delaware corporation, which was bought by H. C. Steinbrenner of Chicago. The new company has $220,000 of 7 per cent prior preference stock; $430,000 7½ per cent cumulative preferred stock and 32,500 shares of common stock of no par value. The production of tires, which has been going on since last March will be greatly increased as new equipment is installed.

Officers of the new corporation are: president and general manager, H. G. Steinbrenner; vice-president, Melvin Pattison; secretary and treasurer, S. Homer Federman. These officers are also the directors of the company.

Syracuse Employment Steadily Increases

SYRACUSE, N. Y., March 3—Automotive plants in Syracuse are gradually resuming activity for increased production. Most all of the big gear, automobile, axle and accessory and lighting unit plants are taking on more men.

The H. H. Franklin Manufacturing Co., has recently been adding men to the payroll at the rate of 100 a day. The company intends to increase production from 30 cars a day to 45 before the end of the month.

Davidson Visualizes Strong 1925 Market

BETHLEHEM, PA., March 4—An interesting summary of the general business situation is given by William N. Davidson, vice-president and general manager of sales of the Bethlehem Spark Plug Co., Inc., who has just completed a personal survey of trade conditions through the country. "Wages at new high levels, increased savings accounts, even the fact that life insurance reports 1924 the biggest year in its history are business markers for the manufacturer in distribution and consumption of products like ours," says Mr. Davidson. He adds:

Coverage and releases with manufacturers in the East are extremely good and show a healthy program for 1925. Two-dollar wheat marks up the buying power of the farmer for 1925, which means great prosperity in our Middle West. The mail order houses are building this into their 1925 programs.

The millions of capital invested in our jobbing and distributing corporations has developed shrewd, keen executives, with whom a conference is well worth while. It is a fact that too many manufacturers have too little intimate knowledge of the close-up range of these men. The vast influence of their credit machinery on the ultimate distribution of manufactured products is very interesting.

The automotive manufacturer and jobber must figure radio as an important influence. In fact, these executives state frankly that an important partial absorption of the present buying power of the people is taken up in radio. Three hundred and fifty million dollars of radio is going into the homes that either now own a family car or would like to. This means that almost an equal amount of radio necessities and accessories will be purchased.

Referring to wider distribution plans of his own company, Mr. Davidson says:

Bethlehem will establish 150 distributing jobbers, from coast to coast, with complete detail service stocks to cover local territory. The sales program calls for an increase in the number of field salesmen covered by the zone managers. Bethlehem has reached a production of 1,000,000 pieces per month. Heretofore the automotive industry has consumed the most of the socket wrenches made, but corporations, such as railroads and general machinery, offer an unlimited virgin field.

Associations Join for Detroit Event

Maintenance Equipment Show and Service Meet Set for May 20 to 23

NEW YORK, March 4—The second annual automotive maintenance equipment show and the national automotive service convention will be held on May 20 to 23, inclusive, in the General Motors Building, Detroit. Both events are being conducted by the National Automobile Chamber of Commerce with the cooperation of the Motor and Accessory Manufacturers Association, the National Automobile Dealers Association, the Society of Automotive Engineers, the Automotive Equipment Association, the Automotive Electric Association, and the Automotive Manufacturers Association.

Service at a profit has been selected as the keynote of the convention program. Sessions will be held from 2 to 5 p.m. on the first three days of the show and each session will be opened by a man of national prominence. Subsequently papers will be presented by well known trade figures on various methods of making the service station profitable. The program is being arranged particularly for the dealer and the topics discussed will all be of current interest to him.

Sam Miles, Manager

The show is being managed by Sam Miles of the N.A.C.C. and applications for space will be mailed to prospective exhibitors within the next few days. In allotting space, preference will be given to last year's exhibitors. On the first three days the show will be open from 10 a.m. to 10 p.m., except during convention sessions, and on Saturday from 10 to 6 continuously, no convention session being scheduled for that day.

In order to insure a large dealer attendance, both the show and the convention are being promoted extensively not only by the N.A.C.C. and the organizations cooperating with it, but also by the factory service departments.

Ford Vehicle Exhibit Taking Definite Form

DETROIT, March 3—Henry Ford's collection of historical relics, ranging from early American buildings to virtually every type of vehicle, is being arranged at his Dearborn plant, where, it is understood, work shortly will be started on cataloging and arranging for museum display.

This collection, which is regarded by historical societies as being the most complete of its kind in the country, probably will be housed in an old inn just outside of Detroit, which Mr. Ford purchased some time ago.

Men of the Industry and What They Are Doing

Smith Succeeds Chambers

A. K. Chambers, who has managed the Chicago branch of the American Bosch Magneto Corp. for the last four years, has been appointed personal field representative of the general sales manager, with headquarters, at Springfield, Mass. Mr. Chambers is now head of the department of field survey and will spend most of his time in the field, reporting general conditions. O. H. Smith has been appointed to fill the position vacated by Mr. Chambers' appointment. Mr. Smith was formerly assistant sales manager of the Thermoid Rubber Co. and has a varied experience in the merchandising and mechanical field.

Herold Rejoins U. S. Electrical Tool

Matt J. Herold has entered the service of the United States Electrical Tool Co. of Cincinnati as general sales manager. He was appointed to the position by the same man, John A. Smith, whom he saw, in Dayton, Ky., in 1898, produce the first portable electrical drill. Mr. Herold, after seeing Mr. Smith, now president of the above named company, experimenting with the drill, became salesman and secured the first large order. He later became associated with a large steel manufacturing company and with one of the motor manufacturing units of the General Motors Co. He later was in charge of the east central division of sales for the Wood-Imes Manufacturing Co., and then, 27 years after seeing the experiment with the electrical tools, was called back to the U. S. E. T. Co.

Lynes Moved Up by Gardner

R. E. Lynes has been appointed sales manager of the Gardner Motor Co., Inc., St. Louis, according to an announcement by Walter H. Yeldell, secretary and sales manager of the company. Mr. Lynes has been connected with the Gardner interests for 14 years in the sales and advertising departments, and for the past year was assistant advertising manager.

Haggart Assumes New Duties

J. C. Haggart, Jr., chief engineer of the Republic Motor Truck Co., Inc., Alma, Mich., has been appointed assistant to O. W. Hayes, president of the company. Mr. Haggart's new duties will be in addition to those of chief engineer, a position he has filled for the last three years.

Lehr Resigns from Detlaff

A. A. Lehr has resigned as general sales manager of the A. J. Detlaff Co., Detroit.

Hoyt Resigns from U. S. Rubber Plant

H. J. Hoyt, associated with the Morgan and Wright plant of the United States Rubber Co., Detroit, for the last 19 years in various capacities, from draftsman to chief engineer, has resigned. Mr. Hoyt has not announced his future plans.

Wooler Joins Timken Roller Bearing

Ernest Wooler has resigned as chief engineer of the Cleveland Automobile Co., to become automotive engineer of the Timken Roller Bearing Co., Canton, Ohio.

Gunion Placed on Sales Board

P. C. Gunion, for the past six years advertising manager of the Hyatt Roller Bearing Co., Harrison, N. J., has been appointed to a place on the sales board and will also head the market research department, in addition to continuing in charge of the advertising activities. As a member of the board Mr. Gunion will have a direct part in the shaping of future sales policies, which is expected to prove advantageous in bringing about a still greater degree of coordination between sales and advertising efforts.

Calderwood Goes with General Tire

Charles G. Calderwood, until recently manager of the St. Paul, Minn., Union Bus depot, has been named Minnesota representative of the General Tire and Rubber Co. Prior to his connection with the depot he had twelve years' experience in the tire industry.

H. M. Craig Becomes Realtor

Hugh M. Craig, who for six years has been executive manager of the general export division of the General Motors in New York, has been made vice-president of the Staring Co., Minneapolis realtors, in charge of sales and advertising.

J. H. Wilson Now London Dealer

J. H. Wilson, formerly managing director of Dodge Brothers (Britain) Ltd., has been appointed Dodge dealer for the metropolitan area of London, effective March 1. R. N. Harger, until recently director of advertising and promotion for Dodge Brothers, Detroit, will succeed to the position of managing director.

Swan Joins Timken Staff

Charles A. Swan has recently become associated with the Timken Roller Bearing Co. of Canton, Ohio, as assistant manager of steel sales.

Pierce Joins Marmon Staff

W. E. Pierce, president of the Hume Body Corp. of Boston, has been retained as chief body engineer and designer of the Nordyke and Marmon Co. and will be located permanently at the Indianapolis office. Mr. Pierce, who designed the bodies of the eleven new Marmon bodies, was formerly with the Scranton Electric Light Co.

Jackson in Charge of Wire Wheel

Directors of the Wire Wheel Corp. of America at their annual meeting confirmed the appointment of H. G. Jackson as vice-president and general manager to succeed G. M. Williams, now president of Marmon. Mr. Jackson has had charge of the manufacturing activities of the company since Mr. Williams left and the confirmation of his appointment has been expected for some time.

Lincoln Products Advances Sedley

P. G. Sedley has been named general sales manager of factory equipment for the Lincoln Products, Chicago, makers of Lincoln Shock Absorbers. Until recently he represented the Lincoln company in Michigan, Illinois, Indiana and Missouri.

Wiese Goes to Philadelphia

Arthur W. Wiese is now manager of the Philadelphia office of the Strom Ball Bearing Co., with headquarters at 309 Lincoln Building.

Bock Bearing Promotes Adams

George S. Adams has become chief engineer of the Bock Bearing Co., Toledo, Ohio, succeeding L. W. Close who recently resigned to enter other business. Mr. Adams was formerly with the White Co. in Cleveland.

Potter Made an Oakland Manager

A. M. Potter has been appointed Denver district manager for Oakland Motor Car Co. For the past ten years Mr. Potter has been attached to the sales department of Dodge Brothers in the capacities of Atlanta district manager, Des Moines district manager and sales executive at the home office. Previously for three years Mr. Potter was service manager of the Lozier Motor Co., following one year each in the service departments of Hudson Motor Car Co. and the Chalmers Motor Car Co. His territory for Oakland will include all of Colorado and Utah, the adjoining halves of Wyoming and New Mexico, and the adjacent territories in Nebraska, South Dakota and Iowa.

W. H. OAKES DEAD

INDIANAPOLIS, March 4—William H. Oakes, founder of the Oakes Co., manufacturer of automobile parts and metal stampings, a division of the Martin-Parry Corp., died at his home here following an illness of nine months. He founded the Oakes Co. in 1910.

Retail Men Prepare for Brisk Demand

Conditions Generally Favorable, with February Sales Better in Most Places

NEW YORK, March 4—Spring conditions in the retail sales field throughout the country have cast their shadows before. With the beginning of March correspondents in important centers, with few exceptions, report sales better than at the same period last year, while the outlook, based upon prospects and inquiries, is bright.

In New York, automotive sales in February were better than in January and also larger than in February a year ago. Dealers do not expect to do a much larger business during the ensuing three months in the metropolitan district than they did in the same period of 1924, but they anticipate larger profits, because they are not overstocked with new and used cars and there will not be a repetition of the losses that were so numerous last year.

In Chicago business in the retail trade during February continued to show the tendency toward betterment that was felt to some extent in December and which developed as an apparently established fact in January. There is no longer doubt as to the general direction of trade in that district. Some of the sales made in February came as the result of leads obtained at the Chicago show, but, eliminating those, the month produced better returns than did January. Improved business to the extent of 25 to 30 per cent over January is reported in exceptional cases. One reliable statistical source indicates an average pick-up of 10 per cent over January in time sales.

Philadelphia reports business as slightly poorer than in February, 1924. Used car sales there are fair. New car sales prospects for March, as compared with last month, are good, judging from the number of inquiries and the approach of spring, with more favorable weather. The tire trade there is experiencing what some call a boom. Truck sales are slow, but promise betterment.

Detroit Busy Making Deliveries

Detroit reports that retail conditions in the city and the State are very promising for March. Throughout February there was a well-sustained buying movement, both in new and used cars, so much so that there was some difficulty in making prompt deliveries in certain models. The year to date, says the representative with headquarters there, is almost exclusively a closed car year, with coaches predominating, but a good business in open cars is expected to develop during March and continue during the second quarter. There are practically no new car stocks in dealers' hands and activity in the retail market is reflected almost immediately at factory sales departments.

In Cincinnati there is a normal volume of business, and there is every indication that spring business will be large.

St. Louis automobile business was about the same during February as in January, also as in February of last year. The demand for higher priced cars features the situation in that section.

Motor car distributors and dealers in Boston look forward to real good spring buying, based upon February indications. Boston has had its annual Washington's Birthday openings, which this year were the most successful in the score of years that they have been held. Thousands of visitors supplied the dealers with many orders and hundreds of prospects.

Denver Rushed with Orders

From out in Colorado comes this encouraging report sent by the Denver correspondent:

Colorado is experiencing one of the most prosperous eras in her history and the automobile business is benefiting accordingly. Farmers, especially in the sugar beet growing districts, were recipients of the greatest crop payments in the history of the industry. The striking of oil, with the revival of silver mining, adds to the spending power of the people.

Dealers in light cars report more new owners than ever, while more expensive models are supplanting light vehicles in many instances. This is especially true in the farming communities. Denver is keeping up its percentage of growth as a city and trade correspondingly increases. Truck dealers report spring prospects better than ever.

From Des Moines comes the information that dealers in the smaller trade centers of Iowa have found their February business better than in several years. Distributors in practically all lines did a good business during the month, especially those handling medium and low priced cars. Business there exceeded that of February last year by a wide margin. There is a good demand in Iowa for closed cars, but used cars of the open type are difficult to sell. The money market continues slow, but dealers are finding that better business conditions have offset the tightening of credits.

Kansas City, Mo., sends this dispatch:

Motor car distributors are extremely optimistic over the prospects for sales both in the city and surrounding territory for March. General conditions alone indicate a heavy demand and ability to buy. February sales for most distributors were much better than those of a year ago. The Federal Reserve Bank for the Tenth District, notably the oil and ore areas, where conditions had been less propitious, indicates a rising tide of prosperity.

Toledo reports that retail sales of cars in that territory in February held their own with January and February a year ago, but that the outlook for March is much more optimistic. One surprise is the steady movement of used cars, which have been going exceptionally well. The retail tire and accessory business is off, but the wholesale movement is fair, with a pick-up expected in April. Money market conditions there are excellent.

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Balloon Tire Sales Show Great Gain

Rubber Factories in the Akron District Made Busy by New Orders

AKRON, OHIO, March 4—Rubber factories in the Akron district which manufacture original equipment tires for the Ford Motor Car Co. are increasing production of balloon tires, as a result of the new Ford policy providing for balloon tires as optional equipment on new Ford cars. The extra charge for the balloon tire equipment is $25. A considerable number of Ford purchasers are availing themselves of this privilege.

The Mason Tire & Rubber Co., one of the largest manufacturers of tires for the Ford plant, will let contracts this week for construction of an addition to its plant at Kent, to cost several hundred thousand dollars. The building will be used exclusively for the manufacture of balloon tires, it is announced. Heretofore Mason has not entered the balloon tire field to any extent, having concentrated its production on high pressure cord and fabric pneumatics.

Larger contracts with the Ford company for supplying original equipment are expected to be made as soon as the addition is completed. Ford's monthly requirements have just been raised from 50,000 tires a month to 52,000, according to Mason officials. The Mason plant achieved new high records in sales volume during January and February. Sales for the two months aggregated approximately $1,500,000.

The Firestone Tire & Rubber Co. is installing new equipment which will enable the company to boost its tire sales to about 40 per cent. The peak tire production will be 40,000 tires a day, compared with 32,000 now. Balloon tire business is about twice as heavy as reported in the same time last year.

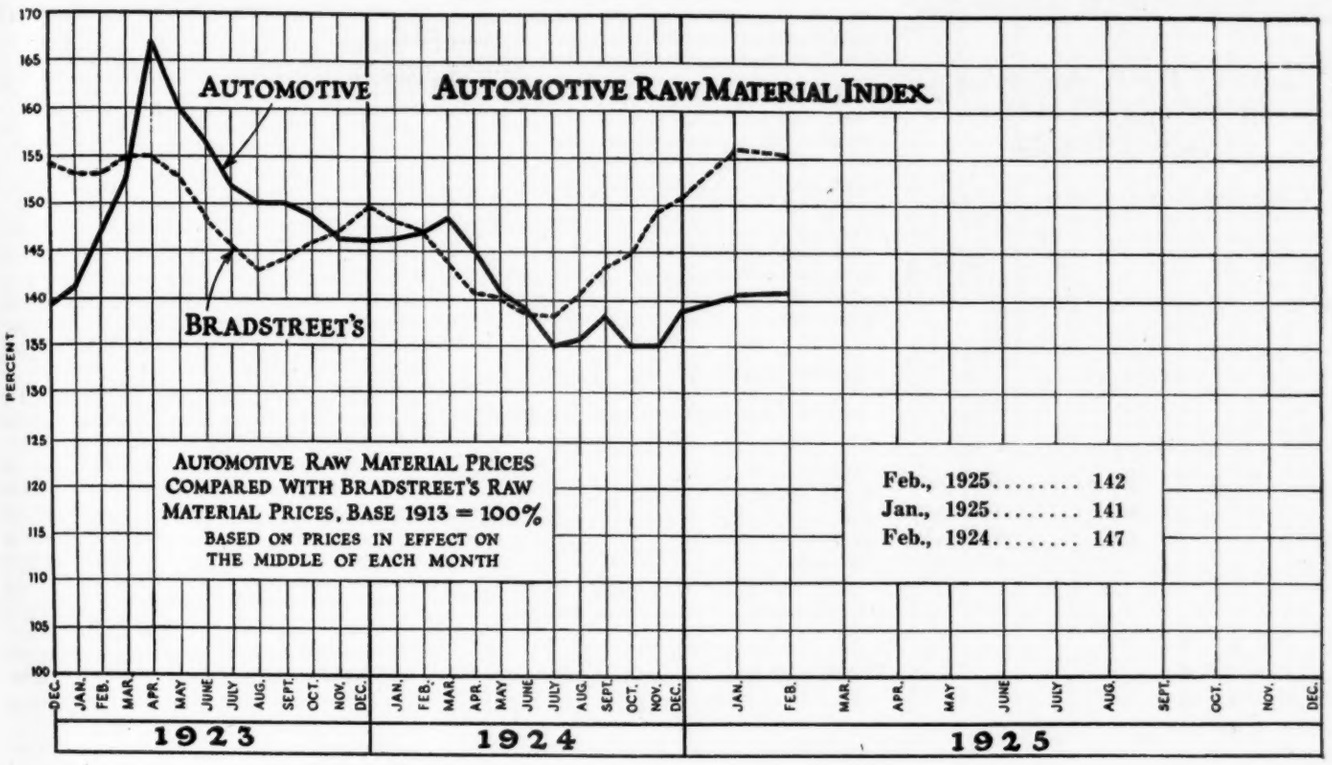
Miller Sales Increase

AKRON, March 4—Sales of the Miller Rubber Co., to be made public at the annual stockholders' meeting next Tuesday (March 13), were in the neighborhood of $40,000,000 in 1924, compared with $29,188,523 the previous year, it is learned from unofficial sources.

Miller officials state that last year was one of the best in the history of the company, and business in 1925 is expected to duplicate, if not surpass, this high record. All departments are operating at capacity, with tire production at the highest levels ever reached, and plans for expansion are under way.

Net earnings of the company in 1924 were equivalent to approximately $45 a share on the common stock, according to sources close to the management. After allowing for depreciation, income taxes and normal preferred dividends, profits accruing to the common stock were $1,314,436, equal to $25.36 a share.

COSTS OF MATERIALS UP IN FEBRUARY



Retail Men Prepare for Brisk Demand

(*Continued from page* 482)

In Indianapolis sales conditions, while better in February than in January, are not quite as favorable as in the outlying territory. Many cars actually sold in February were marked down for March delivery.

In Cleveland sales picked up slightly under the influence of warmer weather during the middle of February, but zero temperature toward the last of the month caused a drop. Sales were about what they were a year ago. Closed car models constitute 75 to 90 per cent of the sales.

Minneapolis reports a brisk business that presages new records in the spring. Dealers who do not order at least a month ahead are apt to regret it, the correspondent writes, as prosperity is generally noted.

Salt Lake City reports that new and used cars are selling 10 per cent better than they did a year ago. The farmers are likely to have bumper crops as a result of frozen snow in the mountain watersheds. The State also is making excellent progress in road building.

Pacific Coast Sales Lower

Reports from the Pacific Coast were not so good as those from other sections. The following is from Seattle:

February sales in the majority of lines were less than in January. Automobiles in possession of persons March 1 are subject to tax. This explains why there has been a slowing up in February, with every promise of an acceleration after March 1. The lumber business has slowed up a bit, but building is active. The farming districts can be depended upon to do more buying than a year ago.

San Francisco reports that although prospects for the future are brighter than they have been for many months in the automotive trade of California, due to bountiful rains in February, the month was slow as to actual sales. Truck sales fell 10 per cent below those for January.

In Los Angeles there was little change in sales conditions during February. The short month and the indefinite legislative situation confronting owners are assigned by dealers as the reasons. The first Monday in March is personal property assessment date and this also is said to have been a deterrent on new vehicle purchases during February. The demand for used cars and for trucks has been better than for months.

Southern Sales Keep Up

Favorable conditions prevail throughout the South. Louisville reports:

Some of the dealers are finding it necessary to bombard their factories in order to provide scheduled deliveries. Prospects for spring business are unusually good. Sales at the show during the third week in February gave the business the best start it has had in years. Dealers report used car stock from 25 to 50 per cent less on hand than at this time last year.

Dallas wires that the automotive situation in Texas showed improvement during February. The low priced car led the field in sales. Dealers in the smaller towns reported business better than in January. Used car sales were about the same as in January. Truck business was a little slow.

The Atlanta correspondent states that new car sales are running a little better than last year and that dealers are "unloading" used cars at greatly reduced prices. He adds:

The most encouraging feature of the February conditions in the Southeast is the marked improvement noted over last year in truck and bus sales. Industry is on a very active basis. Further development of the bus business is certain.

Birmingham reports that there has been a steady improvement in sales conditions there. Dealers in the more expensive cars report increased activity.

Syracuse, Buffalo, Springfield, Ohio, and Hartford, Conn., all report February sales as practically normal, with prospects for the ensuing three months brighter than last year. Bad weather affected February sales there.

FEDERAL MOTOR CELEBRATES

TOLEDO, March 5—Federal Motor Truck Co., organized in 1910, with its original capital of $50,000 now increased to $2,000,000 without refinancing or reorganizing, is celebrating its 15th anniversary. Another fact worthy of note in connection with the company is that Martin L. Pulcher, its founder, is still president and general manager, while the board of directors has remained the same from the start. During the 15 years of its history, the company has built more than $150,000,000 worth of commercial vehicles.

Duesenberg Sale Approved by Court

New Organization Plans a Production Double That of Former Company

INDIANAPOLIS, March 5—Sale of the assets and property of the old Duesenberg Company to the newly organized organization has been approved by Judge Bash in probate court here. The consideration was $375,000.

The Security Trust Co. as trustee for the creditors' committee, of which David L. Johnson of Cleveland is chairman, and for larger stockholders of the company, bought the property, with the exception of the cash and accounts receivable, and turned the assets over to the new Duesenberg Motors Co.

By the terms, $130,912 of the sale price was in cash and the balance of the indebtedness is to be handled by bonds representing about 60 per cent of the liabilities, to which the creditors coming into the pool agreed.

The creditors who were not in the pool are said to represent less than $2,000 in claims. The former receiver will continue action on a few claims which have been disallowed.

New Shares for Stockholders

Stockholders of the old company who came into the new organization will receive stock in it. About one-fifth of the former stockholders are said to be represented in the new company, but all shareholders are to be given an opportunity to come in.

The total capital stock of $500,000 already has been paid in, according to officers of the company. Frederick Duesenberg, president and general manager, says that production will be increased at once and the increased force soon will build up a repectable output. He says that plans toward a production of 500 cars already are under way and that a production double former records will be maintained.

51 Cars and 22 Trucks to Be Shown in Boston

BOSTON, March 3—Allotment of spaces for the annual Boston automobile show, March 7-14, has been announced. As now arranged, there will be 51 passenger cars, 22 trucks and one tractor in the exhibition. In the salon to be held at the Copley Plaza Hotel there will be 12 lines displayed. The accessories run about 200, with more coming in.

Manager Chester I. Campbell has started arrangements for the decorative scheme. The dealers are making reservations for a lot of men from the factories this year. A year ago a lot of factory men passed up the Boston show, and so the dinners were not very lively.

Here are the cars listed for display: Apperson, Auburn, Buick, Cadillac, Case, Chandler, Chevrolet, Chrysler, Cleveland, Cunningham, Dodge, Dorris, Durant, Essex, Flint, Ford, Franklin, Gardner, Haynes, Hudson, Hupmobile, Jewett, Jordan, Kissel, Lincoln, Locomobile, Luxor Cab, Marmon, Maxwell, Mayfair, McFarlan, Moon, Nash, Oakland, Oldsmobile, Overland, Packard, Paige, Peerless, Pierce-Arrow, Renault, Reo, Rickenbacker, Rollin, Stanley Steamer, Star, Stearns Knight, Studebaker, Stutz, Velie, Wills Sainte Claire, Willys-Knight.

The following trucks are to be shown: American La France, Cadillac, Chevrolet, Cunningham, Federal, Ford, Garford Graham Brothers, International, Kelly-Springfield, Mack, Maxim, Maxwell, Netco, Pierce-Arrow, Reo, Republic, Rollin, Ruggles, Selden, Stewart, Wachusett, Fordson Tractor.

Americans Want Transport Discussion at Brussels

WASHINGTON, March 4—American representatives of the International Chamber of Commerce have made formal request that highway transportation be one of the topics at its meeting in Brussels in June.

The theme of this year's meeting is the economic restoration of Europe.

Latex Ships First Tires to British East Africa

FOND DU LAC, WIS., March 3—The first shipment of Latex tires made to Africa has just been loaded at the factory of the Latex Tire & Rubber Co. at this place. It is destined to Jasser Bewjee, national exporter and commission merchant at Mombasa, British East Africa. The sale was made through Walker Bros., Ltd., London agent for the Province of Kanya, and has been in negotiation since last August.

The Latex company has developed a considerable foreign business to other nations and believes it will be able to make a formidable entrance into the African field as the result of the order.

SCHENUIT TO MAKE TIRES

BALTIMORE, March 3—The Frank G. Schenuit Co. of this city has bought one of the units of the Mount Vernon-Woodberry Mills here and is having the property altered and equipped for the manufacture of automobile tires. Production at the rate of about 100 per day is expected to begin in the near future.

A. E. R. A. BUS CONFERENCE

In a recent news article in AUTOMOTIVE INDUSTRIES on the action regarding buses taken at the mid-year conference of the Executive Committee of the American Electric Railway Association, at Washington, D. C., it was stated that the American Automobile Association had assisted in drafting the conclusions which were later adopted. Charles P. Clark, manager of the Commercial Vehicle Department of the American Automobile Association, states that his organization was not represented at the conference, and we accordingly make this correction.

FINANCIAL NOTES

United States Rubber Co. $30,000,000 6½ per cent serial gold bonds, maturing in 15 annual installments of $2,000,000 each from March 1, 1926, to March 1, 1940, both inclusive, were offered, at 99¼ and accrued interest, through Kuhn, Loeb & Co., New York. They are coupon notes in $1,000 denominations, registerable as to principal. Interest is payable March 1 and Sept. 1. The books were closed, the issue having been oversubscribed.

Gould Coupler Co., Maryland, offered through a New York banking syndicate, 175,000 participating Class A shares at $25 per share. With each Class A share ¼ common share is delivered. The company owns the entire capital stock of the Gould Storage Battery Co., which sells batteries for automobiles, radio, house lighting plants and submarines. The books were closed, the offering having been oversubscribed.

Glidden Co. has offered and sold through a New York syndicate a new issue of $3,000,000 first mortgage 6 per cent serial gold bonds, which were issued to retire the outstanding first mortgage 8 per cent bonds. Through the substitution of the lower interest rate the interest carrying charge will be reduced about one-quarter.

Armstrong Rubber Co., Inc., balance sheet as of Dec. 31, 1924, shows total current assets of $425,318 and current liabilities of $140,682, with net working capital of $284,636, based upon these figures. On that date the net tangible assets applicable to the 12,733 shares of no par value common stock amounted to $395,660, or $31.07 per share.

Griffin Wheel Co. stockholders have received a letter from C. A. Kopf, secretary, informing them that the company contemplates retiring all the preferred stock at $115 on August 1. The letter stated that official action had not been taken on the matter.

E. I. du Pont de Nemours & Co. has called for redemption an additional $8,000,000 of an original issue of $35,000,000 ten year 7½ per cent gold bonds put out on May 1, 1921. The redemption will be at 106 and accrued interest on May 1 upon presentation to the Bankers Trust Co., New York.

Murray Body Corp. no par common stock to the extent of 150,000 shares and $4,000,000 first mortgage 6½ per cent 10-year gold coupon bonds, due Dec. 1, 1934, have been admitted to the list by the New York Stock Exchange.

Borne Scrymser Co., manufacturer of lubricating oils, as of Dec. 31, 1924, shows total assets of $1,682,316, against $1,634,195 at the end of the previous year, and profit and loss surplus of $539,721, against $512,007.

Viking Pump Co., Cedar Falls, Iowa, has increased its capital stock from its original $200,000 to $500,000. The company is now employing nearly 100 men and has an annual sales business of over $500,000.

Premier Motors, Inc., has created an issue of $2,000,000 preferred stock, par $100. The company had 100,000 shares of no par value common stock authorized. It plans to increase output.

Wm. Cramp & Sons Ship & Engine Building Co. has declared the regular quarterly dividend of $1, payable March 31 to stock of record March 17.

Pierce-Arrow Motor Car Co. has declared the regular quarterly dividend of $2 a share on the prior preferred stock, payable April 1 to holders of record March 14.

India Tire 1924 Sales Increase $1,061,454

AKRON, OHIO, March 3—India Tire & Rubber Co. net sales for 1924 were $3,021,767, an increase of $1,061,454, or 54 per cent over 1923, according to the report of President J. M. Alderfer at the annual meeting. This gain was accomplished with a 25 per cent increase in sales expense, officials stated.

After paying preferred dividends and 6¼ per cent on common, $326,882 was added to reserve and surplus. India is capitalized for $1,100,000.

1926 New York Show to Be Held in Palace

N. A. C. C. Fixes Exhibit Date as Jan. 9—Chicago Show Two Weeks Later

NEW YORK, March 5—The New York show will be brought back to the Grand Central Palace next year. This was one of the important decisions reached at the meeting of the members of the National Automobile Chamber of Commerce held here today. The 1926 New York show will open on Jan. 9 and the Chicago show will open two weeks later at the Coliseum.

The change from the Palace to the big Armory in the Bronx was made two years ago, first, because the space available in the Palace was inadequate to fill the requirements of members who desired to show a considerable number of models, and, second, because the entrances and exits caused such confusion that on a number of occasions city officials closed the doors.

The space difficulty has been overcome by the fact that, although the amount of space desired by each individual exhibitor is as large as ever, there are fewer car exhibitors.

Most important of all, the Palace has made changes in the building which largely overcome the difficulties previously experienced by overcrowding.

The members of the N. A. C. C. were not unmindful of the magnificent facilities offered by the Armory, where the entire show was placed on one floor, but the improvements in the Palace, combined with its superior accessibility, were considered ample reason for the change decided upon.

Dealer Days to Be Continued

Dealer trade days will be continued on a basis that will be outlined a little later.

At New York this year 8800 dealers from 41 States and 13 foreign countries attended the show during the trade days, and at Chicago 6800 dealers from 38 States and nine foreign countries. The surplus from the shows distributed back to the members this year was 56 per cent from New York and 73 per cent from Chicago.

It was decided to hold another World Motor Trade Congress, Jan. 11-13, 1926, at the time of the New York show.

Trade Conditions Reviewed

Brief summaries of trade conditions by the manufacturers developed the fact that sales in the Southeast have not been good. Car stocks were reported to be low, except in California; used car inventories apparently are in pretty good shape. Car prospects are much better than a year ago. January and February sales were satisfactory in the Middle West, but below last year in New England, New York, Colorado and California.

Light truck sales are better than in 1924, while heavy truck sales are holding up well. Employment conditions, which affect used car sales materially, are improving almost everywhere. The whole atmosphere of the meeting was highly optimistic.

Citroen Reduces Prices on Models in Britain

LONDON, Feb. 26—(*By mail*)—Substantial reductions in the British prices of all models of Citroen cars have been announced. As the following table will show, the reductions average 9.6 per cent, taking all models, while in one case a cut of 20 per cent is represented, namely, that of the 11.4 hp. French bodied three-seater (clover-leaf pattern):

7.5 HP.	Old Price	New Price
2-seater	£145	£130
3-seater	155	145
Coupe	170	155
11.4 HP. English body		
2-seater (with dickey)	240	230
4-seater	250	235
Coupe (with dickey)	305	290
All-Weather	365	355
11.4 HP. French body		
3-seater	225	180
4-seater	225	200
Saloon	295	260
Saloon (All steel)	325	280
Landaulette	350	295

The standard equipment includes electric lighting and starter in all cases, five detachable wheels with balloon tires, screen wiper, driving mirror, speedometer, and other usual items, while the 11.4 hp. models have shock absorbers and the English-bodied open cars are fitted with rigid framed side curtains and a folding rear screen.

Bergougnan Rubber Sale Planned by Receiver

TRENTON, N. J., March 3—Federal Judge Runyon has issued an order to Charles E. Stokes, receiver of the Bergougnan Rubber Corp., Trenton, N. J., requiring the Mechanics National Bank of Trenton, N. J., and some concerns to show cause why the assets of the concern should not be sold at public auction. The assets consist of land, buildings, machinery and materials for the manufacture of rubber tires.

The company, which was organized under the Delaware laws with $2,000,000 capital, has debts amounting to about $1,000,000. The parent company of the Bergougnan concern maintains tire manufacturing plants in several countries.

Continental Axle Business Gains

EDGERTON, WIS., March 3—The Continental Axle Co., affiliated with the Highway Trailer Co., and occupying joint works at Edgerton, Wis., reported an increase of 25 per cent in business to stockholders at the annual meeting. Four new products were added in 1924, namely: Earth boring machines and power winches for the Western Electric Co., and steel wheels and springs for trailers.

Truck Demand Strong Reports E. F. Loomis

Returning from Western Trip, He Says 1925 Bus Output Will Show 4000 Gain

NEW YORK, March 4—Returning to New York from a three weeks' visit to manufacturing plants in the Middle West, Edward F. Loomis, secretary of the Motor Truck Committee of the National Automobile Chamber of Commerce, stated that the demand for motor trucks and buses so far this year has been better than anticipated. In many quarters, he said, orders have been larger than in January, 1924, and than in December, 1924.

Among the cities visited by Mr. Loomis were Cincinnati, Indianapolis, Marion, Ind.; Wabash, Ind.; Chicago, Milwaukee, Cadillac, Alma, Pontiac, Lansing, Detroit, Lima, Cleveland and Buffalo.

Mr. Loomis gave the following resume of his conclusions:

Manufacturers are both expecting and planning for a volume of business considerably in excess of that obtained in 1924. The feeling is prevalent that the use of commercial vehicles will greatly be expanded because of favorable business conditions everywhere predicted for 1925 and because of the increase in hard surfaced highways.

Considerable additional capital is being placed in motor bus manufacturing facilities. It is to be expected that about 16,000 motor buses will be built in 1925, as compared with 12,000 in 1924.

Many truck manufacturers are working under larger production schedules than normal. In several instances inability to keep up with the demand for special types of vehicles is reported. In some cases where volume of production has been lowered the manufacturer has adopted a new restrictive sale policy which places him upon a sounder financial plane.

In line with this, evidence of better and more conservative sales policies was quite generally found. Manufacturers seem to be tightening up on credits and to be less liberal with trade allowances. These facts, coupled with the dropping out of business of a number of small manufacturers and the development of much new business, seem to have relieved appreciably the strain caused by highly competetive conditions in the trade in the past.

The sale of 1800 buses to street railways in 1924 and rapid strides in experimentation with the motor truck by railroads are among the factors upon which truck and bus manufacturers are basing confidence in continued and increasing demand for commercial motor vehicles during the next few years.

C. L. PALMS DIES

DETROIT, March 4—Charles L. Palms, 53, a member of one of Detroit's oldest families and well known in the industry circles 20 years ago, died here. In 1904 he was one of the organizers of the Wayne Automobile Co. and served as president and treasurer. In 1907 with B. F. Everitt, W. E. Metzger and Walter Flanders, he formed the E. M. F. Co., which was sold to the Studebaker.

Huffman Brings Out New Model Truck

New Line of Passenger Cars with 4-Wheel Brakes Also Being Launched

ELKHART, IND., March 5—Huffman Brothers Motor Co. has brought out a 1½-ton capacity speed truck priced at $1,790 and a 2-ton capacity model listing at $1,990. An entirely new line of passenger cars, consisting of five body models on a 115-in. wheelbase chassis equipped with balloon tires and hydraulic four-wheel brakes also is being launched.

The 2-ton truck model has a four-cylinder, 226 cu. in. displacement Hercules engine having force feed lubrication, pump circulation of cooling water, magneto ignition and Zenith carbureter. The clutch is a Borg & Beck and the transmission provides three speeds forward and reverse. Drive to the worm reduction rear axle is through a two-piece tubular propeller shaft supported centrally in an SKF self aligning ball bearing. Frame side rails are 212 in. long. They are pressed from 3/16-in. stock and are 5½ in. deep with 2½ in. flanges.

Front springs are 42 by 2½ in. and those at the rear 50 x 3 in. The solid tires are 34 x 3½ in. and 34 x 6 in. front and rear, respectively. With the standard wheelbase of 140 in., the loading space back of the driver's seat is 10½ ft. Equipment included in the list price consists of seat and riser, tool box and kit, horn, oil side and tail lamps, and Alemite lubricating system.

The powerplant in the 1½-ton speed truck, including clutch and transmission, is the same as in the 2-ton model. The drive is through a tubular shaft, rear axle torque and propulsion being taken through the springs. The rear axle is a bevel reduction type. The frame side rails are of the same section as in the large model but are 10 in. shorter. The standard wheelbase is 132 in., which gives a loading space back of the driver's seat of 8 ft. 9 in.

Spring lengths and widths are the same as in the 2-ton model. Artillery wood wheels with 33 x 5 in. pneumatic tires are regular equipment.

Other equipment on this model includes an electric lighting system, electric horn, Alemite system and nickeled radiator shell. Double internal expanding brakes are provided on both models.

BRITISH PRICE VARIATIONS

LONDON, Feb. 25 (*by mail*)—Both increases and reductions in the prices of certain British cars have been announced recently. The Rover eight has dropped from £160 to £139, and the nine from £185 to £175. The Austin seven is now £149, as compared with £155. On the other hand, the Crossley 14 has increased from £375 to £400, while certain models of the A. C. (four and six cylinders) went up in price on March 2.

WAR TAX SHOULD GO, COOLIDGE DECLARES

"We do not any longer need war-time revenues. The collection of any taxes which are not absolutely required, which do not beyond reasonable doubt contribute to the public welfare, is only a species of legalized larceny."

These words are from Calvin Coolidge's inaugural address. They indicate that the automobile industry may have the support of the President in its fight to have removed the war taxes which it still carries. Automobile manufacturers still pay war taxes amounting to 5 per cent on passenger car bodies and chassis, 3 per cent on truck bodies and chassis costing more than $1,000, and 2½ per cent on parts.

Durr Succeeds Berlin as Victor Rubber Head

SPRINGFIELD, OHIO, March 4—H. S. Berlin, who has been president and general manager of the Victor Rubber Co., since 1921, resigned this afternoon at the organization meeting of the directors. He was succeeded by H. H. Durr, formerly secretary and treasurer. Mr. Berlin, who came here from the Firestone Tire & Rubber Co. of Akron, said he resigned to look after his other interests. So far he has no announcement to make relative to his future.

Mr. Durr has been identified with the company since 1902 and was president until Mr. Berlin succeeded him. R. F. White, who has been auditor, was elected secretary and treasurer.

STAR SALES INCREASE

AKRON, OHIO, March 4—A 15 per cent gain in 1924 net sales over 1923 was reported by President L. H. Firey at the annual stockholders' meeting of the Star Rubber Co. Sales last year were $1,854,586, as compared with $1,617,046 in 1923. Directors elected were L. H. Firey, Francis Siberling, W. A. Humphreys, W. A. Boesche, Charles Herberich, W. E. Palmer and R. L. Robinson.

GERMAN GOES WITH VER LINDEN

DETROIT, March 4—Leon German, formerly sales manager of the Durant Motor Co. of Michigan under the régime of Edward Ver Linden, has joined his former chief at the Peerless Co., of which Mr. Ver Linden recently was named president.

WILLYS SEES SHORTAGE

TOLEDO, March 4—"The automobile industry is facing a shortage of motor cars this spring," is the opinion expressed today by John N. Willys, president of the Willys-Overland Co.

Small Tire Makers Make Largest Gain

Sales in 1924 Were Proportionately Greater Than Those of Big Companies

AKRON, O., March 5—Greater proportionate increases in sales volume is shown in reports of many of the smaller tire manufacturing companies than by some of the large manufacturers, according to annual statements for 1924, as made public.

Sales of the six better known smaller companies for 1924 totaled $38,905,266, compared with approximately $20,000,000 reported in 1923. The showing of these concerns has been little short of remarkable, in view of price cutting wars and other trying conditions in the industry during recent years. Big gains were reported in earnings, many companies earning substantial profits where there were no profits the year before.

Increased business volume of five of these companies amounted to approximately 50 per cent over the preceding year. These included: the General Tire & Rubber Co., with sales of $13,152,000; Seiberling Rubber Co., $7,352,137; Mohawk Rubber Co., $3,413,731; India Tire & Rubber Co., $3,021,767, and Falls Rubber Co., $2,754,631.

Gain made by the Mason Tire & Rubber Co., which two years ago was on the verge of bankruptcy, was about 40 per cent. Mason's 1924 sales were $9,211,000, compared with $7,000,000 in 1923.

While the three large rubber companies whose statements have been published did not show as great a percentage of increase in sales volume, their net incomes made big gains.

The Goodyear Tire & Rubber Co. reported sales of $138,777,719, against $127,880,082 in 1923; B. F. Goodrich Co., $109,000,000, against $107,000,000 in 1923, and Firestone Tire & Rubber Co., $85,610,004, against $77,583,149 in 1923.

The Miller Rubber Co. annual statement is yet to be considered.

Willys-Overland Makes South American Changes

TOLEDO, March 3—A number of new connections in the export field have been made by Willys-Overland Co. Most important is the contract with Hampton, Watson y Cia of Buenos Aires, to take over the distribution of Willys-Knight and Overland cars in Argentina. The contract calls for sale of 2000 cars this year.

Ellis Hampton, head of the company, has been in business there since 1914 and has a record of sales from 93 the first year to 13,376 cars in 1920.

Other important dealer connections have been made with Auto Americane, at San Paulo, Brazil, and Medan.

Studebaker in 1924 Earned $7.03 a Share

President Erskine Says He Expects 1925 Profits to Exceed Those of 1924

SOUTH BEND, IND., March 4—For the year ended Dec. 31, 1924, the Studebaker Corp., in its annual statement to stockholders, shows net profit of $13,773,869, after depreciation and Federal taxes, equivalent, after preferred dividends, to $7.03 a share earned on 1,875,000 shares of no par common stock outstanding, compared with $18,342,222, which, computed on the basis of present no par shares, was equal to $9.44 a share in 1923.

Surplus, after payment of preferred and common dividends, was $5,678,869, against $10,203,472 in the preceding year. Net sales totaled $135,406,054, against $166,153,683 in 1923.

According to the balance sheet, net quick assets as of Dec. 31, 1924, were $49,399,055, while net current liabilities amounted to $15,672,731, leaving net working capital of $33,726,324. The current assets include inventory valued at $29,801,633, cash holdings of $5,138,048, accounts and notes receivable of $8,790,052, and sight drafts outstanding amounting to $3,795,374.

In connection with the statement, President A. R. Erskine said:

Sales of the fourth quarter amounted to 33,732 cars, as compared to 22,581 cars in the last quarter of 1923, an increase of 49.4 per cent, from which $4,070,190 profits resulted. Sales of cars by the entire automobile industry for the fourth quarter of 1924 showed a decrease of 26 per cent from the similar period of 1923, compared to our 49.4 per cent increase just mentioned.

Manufacturing inventories were turned over eight times, figuring sales at manufactured cost. Gross expenditures amounting to $9,437,394 were made for the completion of construction under way, current betterments and for equipment to manufacture the new models.

All of the fundamentals in this country which underlie business prosperity now exist and business is bound to respond to these conditions. The corporation is well prepared in plants, product and organization to hold its place of leadership in the automobile industry and get its share of the available business. It expects sales and profits for 1925 to exceed those of last year.

Gasoline Tax Rejected by New York Committee

ALBANY, N. Y., March 4—Two bills proposing a gasoline tax in New York State have been rejected in a report submitted to the Legislature by the Committee on Motor Vehicles. The report, which is the result of an agreement among Republican leaders, recommends that a bill be passed providing for a junior operating license which would permit persons between 16 and 18 to operate in rural districts.

TROLLEYS WITHDRAW AS BUSES ADVANCE

NEW YORK, March 3—Elimination of the electric railways as a transportation factor around Rutland, Vt., has followed the withdrawal of the trolley lines of that city in favor of buses, after having transported passengers through the streets of the city for 40 years.

Among other trolley lines that have been displaced by the bus within the last month is one formerly operated between Providence, R. I., and North Scituate, Mass., by the United Electric Railways Co. The company has been authorized to operate buses as a substitute service.

The electric cars which formerly connected Lunenburg and Fitchburg, Mass., were abandoned last month and the Nassau County Railway Co. of New York stopped its cars on New Year's Eve, after having carried passengers between Sea Cliff and Glen Cove, L. I., for 22 years. Independent operators are now supplying substitute bus service in those places.

Among the latest cities on the Pacific Coast to abandon street cars are Astoria, Ore., and Santa Cruz, Cal.

No recommendations as to compulsory insurance or eye tests for drivers of automobiles were contained in the report, the committeemen holding that the subjects were too involved for them to arrive at definite conclusions in the time they had to work on the subject.

Capital Fixes 8000 as 1925 Ford Sales Goal

WASHINGTON, March 3—Warren G. Eynon, manager of the factory branch of the Ford Motor Co. here, presented a banner to the winning team in the contest for high sales at a banquet at the City Club for 150 Ford dealers and salesmen. C. W. Handley was captain of the winning team and Raymond Rocca of the Triangle Motor Co., captained the losers. R. B. English, wholesale manager for this district, addressed the dealers and salesmen and set a new goal of 8000 Ford sales for 1925.

MIDLAND NETS $1,807,483

CLEVELAND, OHIO, March 4—Midland Steel Products Co. made profits of $2,077,481 for the year ending Dec. 31, 1924, after all charges but before Federal taxes. After taxes were deducted the net profit stood at $1,807,483. The earnings are equal to $24.46 a share on the 50,000 shares of no par common stock.

Goodrich Doubles Operating Profit

In 1924 the Company Earned $13,865,524, Against $7,145,406 in 1923

AKRON, March 4—In its annual report for 1924 the B. F. Goodrich Co. shows net sales of $109,817,685, and operating profit of $13,865,524, as compared with net sales of $107,092,730 and net profit of $7,145,406 in 1923. The balance available for dividends, after crediting other income and allowing for depreciation, interest and tax reserves is $8,822,504, which, after preferred dividends, is equal to $10.57 a share earned on the 601,400 shares of no par value common stock outstanding. This compares with $3,025,383, or 80 cents a share earned on the common stock outstanding in 1923.

As of Dec. 31, 1924, the balance sheet shows net current assets of $43,986,314 and net current liabilities of $3,412,856. The earned surplus as of Dec. 31, 1924, is $17,609,966, as compared with $11,106,949 at the end of the preceding year.

In a statement to stockholders, President B. G. Work said:

During the year the management has made considerable progress in effecting economies throughout the organization which have had the result of substantially reducing the costs of its products.

The company had no indebtedness to banks at the close of the year and the amount outstanding at the end of 1923 of $8,500,000 has been entirely liquidated out of the profits of the year.

Your directors feel that full provision has been made for all necessary reserves and that the company occupies a favorable position with respect to its commitments for raw materials purchased for future delivery.

In accordance with the provisions of the company's charter, the directors have voted, subject to your approval, at a meeting called for that purpose, to retire 23,760 shares of its preferred stock, 13,684 of which were in the treasury as at the close of the year, the balance of 10,076 having been purchased since that date.

Ford Shows Increased Closed Car Output

DETROIT, March 3—Statistics by Ford Motor Co. on its 1924 closed car production shows that this business was approximately 40 per cent of the total car output during that year, the highest it has ever reached. Approximately 3,680 yards of cloth was required to trim these cars, the equivalent of the total output of 250 looms. Fleece from more than 875,000 sheep is estimated by the company to have been required.

In referring to its wool requirements, the company notes that the price of this product has more than doubled in the past two years, but that general economies in manufacturing have permitted it to not only maintain but to reduce closed car prices.

Franklin Settles in Moskovics Suit

Case Finally Adjusted Out of Court—Settlement Sum Over $100,000

INDIANAPOLIS, March 4—It has been learned here that the breach of contract suit between Fred E. Moskovics, now president of the Stutz Motor Cár Co., and formerly an official of the H. H. Franklin Manufacturing Co. of Syracuse, N. Y., against the Franklin organization has been amicably settled out of court. This is according to a statement made by Judge Carter, personal attorney for Mr. Moskovics.

Judge Carter has just returned from Utica, N. Y., where last Friday all differences between the claimant and the Franklin company were ironed out in a settlement wihch involved an amount in excess of $100,000 cash. The appealed suit, which was set for a hearing before the New York District Court of Appeals, has been dismissed, it is stated.

The settlement of this suit and the amount of damages assessed by the first trial last December and the final settlement, it is claimed by attorneys, sets a record for a breach of contract suit against an automotive employer.

Judge Carter, who is now a member of the local law firm of Matson, Carter, Ross and McCord, at one time was connected with the merchandising department of the Nordyke and Marmon company.

Suggests Shipping Loaded Trucks by Railroad

NEW YORK, March 3—Shipment of loaded motor trucks by rail between large industrial centers has been suggested by David Halliwell of the Midland and Scottish Railway, as a new method of coordinating rail and highway transportation, according to the National Automobile Chamber of Commerce.

The primary object of the plan is to expedite traffic between points not within easy trucking distance by eliminating the transfer of goods between rail carriers and motor trucks at terminals and by means of the greater speed attainable on rails.

Mr. Halliwell believes the plan offers such substantial benefits to railroads, trucking concerns and the general public that its adoption should receive serious consideration.

STAFFORD WITH A. E. A.

CHICAGO, March 4—Cyrus B. Stafford, formerly connected with the United States Railroad Administration as assistant to the director of public service and chief traffic assistant to the director general of railroads, has assumed duty as general traffic manager of the Automotive Equipment Association. Mr. Stafford joined the railroad administration at the beginning of the war, before which time he served as traffic manager of the Louisville Board of Trade and the Memphis Merchants Exchange. Besides being an experienced rate and traffic man Mr. Stafford is also an attorney, having practiced before the Interstate Commerce Commission and State commissions.

G. M. T. Opens Branches in Jacksonville and Dayton

DETROIT, March 3—General Motors Truck Co. has opened new branches at Jacksonville, Fla., and Dayton, Ohio, according to an announcement made here. This is understood to be a move in connection with a general branch expansion.

Price reductions ranging from 30 to 35 per cent on Delco and Remy armatures are effective as of March 1, according to an announcement by the General Motors Service Co., the official field service organization of the manufacturing companies.

In making the reduction the United Service Co. notes that the price of armatures always has been the greatest single factor in causing questions among car owners as to electrical service bills.

Texas Creates Special Highway Committee

AUSTIN, TEX., March 3—So many measures relating to the use of the highways by motor vehicles have been introduced in the legislature that the house has created a committee, called the Committee on Highways and Motor Traffic, to consider these bills.

The Texas Motorbus Owners Association was organized early in January, with H. A. Pate of Fort Worth as president. Its especial purpose is to look after the interests of that branch of highway traffic before the legislature and to improve the bus service in Texas in various ways.

In discussing the plans and purpose of the new organization, Mr. Pate said:

> For two years it has been apparent that the welfare of the operators and improvement of service to the public by stage lines depended upon some form of regulation that would require standards of practice. The immediate purpose of the organization is to obtain passage at the present session of the legislature of a regulatory measure.
>
> The further purpose is to correlate the various services so that motor buses may be designed even more for the convenience of the traveling public and to inform the public generally of our status in present-day affairs.

CHEVROLET OPENS NEW OFFICE

DETROIT, MICH., March 3—Chevrolet Motor Co. has opened a new zone wholesale office in New Orleans, which will serve the southern Louisiana and southwest Mississipppi territory. Felix Doran, Jr., is in charge. Included in the zone are Shreveport, Baton Rouge, Alexandria, New Orleans, Jackson and Vicksburg.

Coast Bills Watched by Vehicle Board

California Conference Appoints Legislative Committee to Guard Amendments

SACRAMENTO, CAL., March 4—With the usual deluge of bills and measures of every description affecting the operation of motor vehicles before the Legislature, the California Motor Vehicle Conference, composed of representative state organizations, has appointed a legislative committee of seven members with power to act in supporting or opposing bills on the operation of motor vehicles.

Following is the membership of the committee: A. C. Hardison, president California Farm Bureau Federation; W. O. Russell, chairman legislative committee, County Supervisors Association of California; D. V. Nicholson, assistant secretary California State Automobile Association; A. F. Lemberger, manager San Francisco Motor Car Dealers' Association; Will H. Marsh, chief of the Division of Motor Vehicles; R. N. Wilson, industrial director, California Development Association.

The conference is fostering the passage of two measures as amendments to the California Vehicle act. These amendments would include among other things the following measures:

> Provision for an examination for new drivers of motor vehicles and regulations giving the Division of Motor Vehicles and the courts power to weed out incompetent drivers.
>
> Provision for a permanent certificate of ownership for motor vehicles, eliminating the present difficulties of renewal registration where both the certificate of ownership and the certificate of registration have to be renewed annually. Provision providing severe penalties for motorists failing to respond to a five-day citation notice, or giving a false, fictitious or incorrect address to an arresting officer.

Use of Motors Planned by Baltimore & Ohio

BALTIMORE, March 4—Use of motor power on portions of its lines is being considered by the Baltimore & Ohio Railroad Co.

Substitution of this form of transportations for trains is being seriously considered for the Harrisonburg-Lexington end of the Shenandoah division for economic reasons.

The company recently put into use motor equipment between Petersburg and Greenspring, W. Va. Some of the other branch lines are also using this form.

USES BUSES AS FEEDERS

DURHAM, N. C., March 3—The Durham Public Service Co. has received a delivery of three Mack buses which are to be used in the capacity of supplementary or feeder service to its rail operations.

Automobile Sheet Price Trend Lower

Weakening Is Due to Sharp Competition That Exists Among the Mills

PITTSBURGH, PA., March 4 — The 4.75c. price on automobile sheets is fast disappearing from the market and has been almost entirely replaced by a 4.60c. price. The weakening is due to the sharp competition that exists among the mills and the slowness of business to come from the automotive industry.

The price received a sharp setback on competition that arose for the business of a Detroit manufacturer of parts recently absorbed by a motor company. The order went to an Ohio mill which previously had had the business.

According to local steel officials, there are only two automobile concerns that are operating at anticipated schedules for the first of March. One, a Toledo company, is reported to be selling above production on a new model and has specified more sheets for March than has been ordered. The other is a Detroit concern that has had an even run of business for many years.

Tire Activity Attracts Laborers From South

AKRON, March 4—Tire manufacturers in the Akron district are gradually increasing their working forces, but as yet experienced men only are being hired at the employment offices.

Reports of prosperity in the rubber business have brought a large influx of workers from the South to this city. Many of them have worked only on the farm, and some difficulty is being found in obtaining jobs for them.

Although the rubber business is better than at any time in five years, there is none of the competitive bidding for rubber workers that marked the hectic days of the post-war boom. Improved machinery and efficiency experts enable the companies to produce more tires with far less man power.

The saving in labor costs in the building of tires has been enormous. This is one of the principal reasons why automobile tires today are the cheapest manufactured product on the market. They are selling, in many cases, at less than pre-war levels.

TRUCK BODY MEETS

BUFFALO, N. Y., March 4—Directors of the Motor Truck Industries, Inc., after a successful meeting at the Hotel Statler here, spent the afternoon visiting the plants of the Stewart Motor Corp. and the Atterbury Motor Truck Co. This month's meeting will be held March 18 in Detroit on the invitation of the Continental Motors Corp. The movement for complete standardization and as near 100 per cent service as possible is well under way. B. A. Gramm, of Gramm & Kincaid Motors, Inc., Lima, Ohio, sceretary and treasurer, reports the association is making excellent progress.

Continental Motors Gets Four Large Contracts

DETROIT, March 4 — Continental Motors Corp. has closed contracts with three passenger car manufacturers and one bus manufacturer to furnish Red Seal Continental motors for their entire production during the current year, according to R. W. Judson, president of the corporation.

The four contracts call for a total of more than 100,000 motors and represent entirely new business. During January and February production was slightly above normal and these new contracts will considerably increase present schedules. The new work will be assigned to the company's Muskegon plant.

Mr. Judson stated that, taking the business of Continental Motors as a basis for his deduction, he is firmly convinced that automotive manufacturers will do a record business during 1925.

Buses Replace Trolleys in Leavenworth, Kan.

LEAVENWORTH, KANSAS, March 4—All local trolley service has been suspended and five Mack 25-passenger buses are now providing the local transportation facilities.

Last December the Kansas City, Leavenworth and Western Railway applied for and was granted permission to abandon street car service in this city and substitute bus service to operate over the two routes formerly covered by the street cars.

The traction company formed a separate bus operating firm known as the Leavenworth Transportation Co., whose buses went into service the middle of February. The two routes, which are between three and four miles in length, are now being covered by the buses; operating on an eight cent fare.

California Motor Bill Creates a New Crime

LOS ANGELES, March 3—A California legislative bill affecting motorists would create a new crime in this State. It is known as "negligent homicide."

According to the bill, the crime of negligent homicide shall be included in the charge of manslaughter when the accused is charged with causing a death through the medium of a motor vehicle. The penalties provided for conviction are imprisonment for not more than two years in the county jail or not more than five years in prison or by fine not exceeding $1,000, or both.

At this time punishment for conviction of manslaughter is from one to ten years in the penitentiary.

METAL MARKETS

Very little is left of the glamour that brightened the steel market immediately following last November's elections. There are those who wonder if, perchance, this week's inauguration, marking in a way the consummation of that event, may not prove the turning point at this time.

It is not that they consider this week's ceremonial formality has any economic bearing on the steel industry, but it would be a very auspicious coincident if it also marked a revival of steel buying.

Amid the eagerness of consumers for steel due them on old-price contracts and their aversion to fresh commitments at higher prices than those which these old contracts carry, mills are eating very rapidly into their backlog of orders.

According to Wall Street predictions, the leading interest will show another increase in its unfilled tonnage statement to be issued next Tuesday (March 10). If this prediction proves correct, it will emphasize much more than what slight gain in unfilled orders it may reveal, the exceptionally favorable position of the chief market interest at this time.

Certain it is that the backlog of orders of the smaller independents has been whittled down considerably in the last few weeks. As a result, competition for what little in the way of new business the market offers is very keen.

The sheet-rolling subsidiary of the U. S. Steel Corp. is much better off in black sheet business than the independents, and some of the latter are reported to be still in a receptive mood when it comes to bids of 3.50c., Pittsburgh.

More price irregularity is also reported with reference to the market for full-finished automobile sheets. The 4.75c. figure is not as inviolate as it was a few weeks ago. Every inquiry for strip steel from automotive consumers brings out a spirited contest among rollers for the business.

Here and there, the 2.50c. base on hot-rolled is being shaded and while some mills stick closely to the 4.15c. price for cold-rolled, others who are urgently in need of business name 4c. as their base figure.

Bolt and nut plants are operating at about two-thirds of capacity, with specifications on old contracts coming in freely but new business very light. There is talk that non-integrated sheet rollers could obtain sheet bars at $1 below the level recently quoted, but no representative transactions at the lower figure have so far been reported.

Pig Iron.—Movement of pig iron to automotive foundries is restricted to single carloads, with No. 2 foundry freely obtainable at $22, valley, and malleable commanding perhaps 50c. a ton more.

Aluminum.—The market is entirely unchanged and quiet. Secondary material is in good inquiry from parts makers, and prices hold firm.

Copper.—Domestic consumers are reported to be in the market for round tonnages, bidding 14½c., with producers holding their metal at 14⅝ and 14¾c. The leading brass rolling interest announced on Saturday at ½c. per lb. reduction in the price of sheet bars, sheet copper, and brass tubing.

DETROIT EMPLOYMENT GAINS

DETROIT, March 4—Latest weekly figures prepared by the Detroit Employers Association show a gain of 1391 over the preceding week, which is the largest weekly gain since January 17 and a total gain since January 3 of 11,941. The total reported by the association is now 209,275, against 241,134 in the corresponding week of last year and 213,790 in 1923.

STANDARD PARTS MOVES

DETROIT, March 3—The National Standard Parts Association has moved from 901 Washington Building, Buffalo, to larger quarters at 310 Hoffman Building, 2339 Woodward Avenue, Detroit.

Calendar

SHOWS

March 7-14—Boston, Twenty-third Annual Automobile Show.

March 8-14—Vienna, Spring Fair.

April 1-17—Sydney, Australia, Royal Agricultural Show. Embraces automobile exhibits.

April 8-14—Bandoeng, Batavia, automobile show under auspices of Netherlands Indies Jaebeurs Fair Association.

April 22-May 7—Melbourne, Australia, International Automobile Show, under the auspices of the Chamber of Automotive Industries, in conjunction with the Royal Automobile Club of Victoria.

May 20-23—Detroit, Second Annual Automotive Maintenance Equipment Show, General Motors Building, conducted by the National Automobile Chamber of Commerce, with cooperation of the Motor and Accessory Manufacturers Association, National Automobile Dealers Association, Society of Automotive Engineers, Automotive Equipment Association, Automotive Electric Association and the Automotive Manufacturers Association, Sam Miles, manager.

Sept. 21-26—London, Olympia Motorcycle Show.

Oct. 8-17—London, Olympia passenger car show.

Oct. 29-Nov. 7—London, annual truck show.

RACES

April 30—Fresno, Cal.

May 11—Charlotte, N. C.

May 30—Indianapolis.

June 13—Altoona, Pa.

June 20—Baltimore, Washington Speedway, Laurel, Md.

July 26—Paris, Montlhery Track, French Grand Prix.

Sept. 7—Altoona, Pa.

Sept. 30—Fresno, Cal.

Oct. 10—Baltimore-Washington Speedway, Laurel, Md.

Oct. 24—Charlotte, N. C.

Nov. 26—Los Angeles.

CONVENTIONS

May 20-23—Detroit, General Motors Building, National Automotive Service Convention conducted by the National Automobile Chamber of Commerce with the co-operation of Motor and Accessory Manufacturers Association, National Automobile Dealers Association, Society of Automotive Engineers, Automotive Equipment Association, Automotive Electric Association and Automotive Manufacturers Association.

June 22-27—Summer convention of the Automotive Equipment Association at the Broadmoor Hotel, Colorado Springs, Colo.

S. A. E. MEETINGS

March 4—New England Section (Boston)—Flat rate Symposium, R. T. Pierce, P. U. Holloway and Frederick P. Rudolph.

March 4—Milwaukee Section, Sandardization of Frames, L. C. Schwab.

March 5—Detroit Section, The Automotive Air Brake, H. D. Hukill; The Vacuum Brake, V. W. Kliesrath.

March 6—Washington Section, Measurement of Crankcase-Oil Dilution, S. W. Sparrow and T. S. Sligh, Jr.

March 10—Pennsylvania Section, Building of All Steel Vehicle Bodies, Walter A. Graf.

March 11—Dayton Section, Development of Supercharging and Its Effect on Engine Design, E. T. Jones.

March 12—Indiana Section, Developments in Transmission, demonstration in the afternoon of new and different types of transmission and general discussion in the evening.

March 17—Buffalo Section, Automotive Air Brake Equipment, H. D. Hukill.

March 19—Detroit Section, Castings in Permanent Molds, Marc Stern and D. H. Meloche.

March 19—Metropolitan Section, Automotive Distributing, R. Sherman.

March 20—Chicago Section, Recent Progress in Various Fields of Automotive Engineering, H. L. Horning, John S. Erskine, and M. E. Chandler.

March 26—Minneapolis Section, Automotive Rail Car Engineering, S. E. Brennan and various railroad men of the twin cities.

March 26—San Francisco Group, Effects of Engine Operation on Lubricating Oils, L. Wagner.

March 27—Los Angeles Group, Air Cleaners, Prof. A. H. Hoffman.

April 7—Buffalo Section, Transportation Meeting.

April 9—Indiana Section, J. H. Hunt, Electrical Instruments for Automotive Research.

June 15-19—Summer meeting of the Society of Automotive Engineers at White Sulphur Springs, W. Va.

New York May Grant 57 Bus Franchises

NEW YORK, March 3—As a result of the report made to the Board of Estimate by the Board of Transportation, recommending 57 routes, bus operation in New York City may be legalized by the granting of franchises.

It was stated that the award of franchises will depend upon the result of litigation to determine the right of the city to operate buses through the power claimed by Comptroller C. L. Craig under the home rule act. Mayor Hylan and Corporation Counsel Nicholson do not believe the city has this power. Therefore the belief prevails that an effort will be made to grant franchises, early in March, following Mayor Hylan's return from Palm Beach.

Twelve of the 21 routes recommended by the board are substantially the same as those proposed by the Fifth Avenue Coach Co. The People's Electrobus Corp., of which George W. Loft is president, seeks six routes recommended by the board. The Service Bus Corp., of which George P. Tameling is president, suggests nine routes, while the Audubon Transportation Co., recommends ten routes. All are identical with the routes recommended by the board.

Routes recommended by the Board of Transportation and proposed by the Fifth Avenue Coach Co., which now has the only extensive bus system in the city, include uptown and downtown streets.

Some of the applicants reported as satisfactory the terms of the form of franchise recommended by the Board of Transportation. Most of them request a term of from 10 to 25 years. The proposed franchise provides for a four-year term, with the privilege of renewal for four years more on a new financial basis to be agreed upon.

Some objection was made to the clause binding the applicants not to appeal to the courts in the future to upset terms of the contract under penalty of forfeiture if they should attempt so to appeal.

Willys Tells Elmira of Enlargement Plans

ELMIRA, N. Y., March 3—In the city where he sold his first automobile, while proprietor of a bicycle store, John N. Willys, president of the Willys-Overland Co., has completed an inspection of the Willys-Morrow plant, where are made Willys-Knight small parts and transmissions.

At a dinner tendered him at the country club Mr. Willys assured 30 business men and former associates that within two years it would be possible to double the number of employees at his plant here. At present more than 1800 are on the Willys-Morrow payroll. Under the Willys schedule more than the number employed during the war will be engaged at the plant within two years.

AUTO SALES INCOME GAINS

NEW YORK, March 3—Auto Sales Corp. reports net income for 1924 of $62,082, after all expenses and reserves for charges and taxes. This was equal to $1.07 a share earned on the 57,730 shares of preferred stock outstanding.

Libel Writ Issued in British Dispute

LONDON, Feb. 25 (*by mail*)—A writ for libel and slander has been issued by the Society of Motor Manufacturers against the British Empire Exhibition authorities and Sir Lawrence Weaver, director of United Kingdom exhibits, in regard to statements alleged to have been made by the latter in the press about the attitude of the society toward the 1925 exhibition.

Among the statements to which objection is said to be taken is one inferring that the society's stand, in refusing to organize a collective exhibit as in 1924 and in notifying its members that if they exhibited at the empire exhibition they would not be permitted to show at Olympia, was due to the preponderance in numbers and the influence of members who are interested in the sale of foreign cars.

The alleged inference has been repudiated by the Association of British Manufacturers, which has passed a unanimous resolution indorsing the attitude of the society toward the empire exhibition.

RAILWAYS EMPLOY DIRECTOR

WASHINGTON, March 4—At a meeting here the Executive Committee of the American Electric Railway Association created the position of managing director, which is something like that held by Judge Landis in the baseball field and by Will Hays in the moving picture industry. Lucius F. Stoors was elected to fill it. He will retire April 1 from the presidency of the Connecticut Co.